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ANNUAL REPORT
AND
TRANSACTIONS
OF THE
PLYMOUTH INSTITUTION
AND
Devon and Cornwall
NATURAL HISTORY SOCIETY.

VOL. VIII. PART II.

1882-83.

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ANNUAL REPORT
OF THE
PLYMOUTH INSTITUTION

AND
Devon and Cornwall Natural History Society.

1882-83.

OFFICERS OF THE INSTITUTION.

SESSION 1882-83.

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MR. R. N. WORTH, F.G.S.

Vice-Presidents.

MR. J. BROOKING ROWE, F.S.A., F.L.S. DR. J. MERRIFIELD, F.R.A.S.
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MR. JAMES HINE, F.R.I.B.A.	REV. PROF. ANTHONY, M.A.
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Mineralogy—DR. ROBERT OXLAND, F.C.S.
Geology—MR. F. J. WEBB, F.G.S.

LIST OF MEMBERS.

HONORARY MEMBERS.

Elected.	Name.	Address.
1865	Adams, J. C., D.C.L., F.R.A.S. . . .	The Observatory, Cambridge.
1877	Beal, Rev. Professor, B.A., M.R.A.S. .	Wark Rectory, Hexham.
1874	Froude, James Anthony, M.A. . . .	5, Onslow Gardens, London, W.
1859	Gibbs, F. W., C.B., 24, Mount Street,	Grosvenor Square, London, W.
1877	Günther, Dr. A., F.R.S., F.L.S., F.Z.S.	British Museum, London.
1865	Lubbock, Sir John, Bart., D.C.L., F.R.S., F.L.S.,	High Elms, Kent.
1874	Pengelly, W., F.R.S., F.G.S. . . .	Lamorna, Torquay.
1859	Scrivener, Rev. F. H. A., M.A., LL.D.	Hendon, Middlesex.
1875	Temple, Right Rev. Dr., Bishop of Exeter,	The Palace, Exeter.
1865	Vivian, Edward, M.A. . . .	Torquay.
1872	Weymouth, R. F., D.LIT. . . .	Mill Hill, London.
1872	Worth, R. N., F.G.S. . . .	4, Seaton Road.

LIFE MEMBERS.

1855	Alger, J. . . .	Sydney, Australia.
1863	Alger, W. H. . . .	Widey Court, near Plymouth.
1856	Bartlett, G. . . .	Plymouth.
1857	White, James	London.

CORRESPONDING MEMBERS.

1856	Barham, C., M.D. . . .	Truro.
1857	Blewett, Octavius	London.
1857	Boase, H. S., M.D., F.R.S., F.G.S. .	Dundee.
1856	Harding, Col., F.G.S. . . .	Upcott, Barnstaple.
1858	Ormerod, G. W., M.A., F.G.S. . . .	Woodway, Teignmouth.
1858	Peach, C. W., A.L.S. . . .	30, Haddington Place, Edinburgh.
1863	Vicary, W., F.G.S. . . .	Exeter.

LECTURING MEMBERS.

1868	Adams, W. . . .	Sussex Terrace.
1881	Aldridge, Charles, M.D. . . .	Plympton House, Plympton.
1876	Amery, Fabyan	Druid, Ashburton.
1860	Anthony, Rev. Professor, M.A. . . .	Woodland Terrace.
1858	Balkwill, F. H. . . .	Princess Square.
1882	Bampton, Augustus H., M.D. . . .	North Devon Place.
1852	Bate, C. Spence, F.R.S. . . .	Mulgrave Place.
1863	Bennett, E. G. . . .	Woodland Terrace.
1826	Bennett, J. N. . . .	Windsor Villas.
1877	Bird, Rev. Benwell	Wychbury, Fernleigh Road.
1861	Brent, Francis	19, Clarendon Place.

LECTURING MEMBERS—*continued.*

Elected.	Name.	Address.
1862	Briggs, T. R. A., F.L.S.	Richmond Villa, Saltash Road.
1870	Briggs, Lieut.-Colonel J. A. J.	Richmond Villa, Saltash Road.
1882	Brugmann, O. W. R.	5, Devonshire Terrace.
1881	Burnard, Charles H.	Chatsworth Lodge, Compton Park Road.
1851	Cater, Samuel	North Devon Place.
1882	Carter, Godfrey	S. Devon & E. Cornwall Hospital.
1876	Chapman, Rev. Professor, M.A.	Western College, Tavistock Road.
1880	Clarke, Edward, M.P.,	Huntingdon Lodge, Peckham Road, London.
1853	Collier, Sir R. P.	Eaton Place, London.
1851	Collier, W. F.	Woodtown, Horrabridge.
1876	Collier, Miss Bertha Cycill	Woodtown, Horrabridge.
1876	Collier, Charles Calmady	Woodtown, Horrabridge.
1867	Collier, Robert	7, Chelsea Embankment, London.
1877	Coney, Rev. Thomas, M.A.	4, Wingfield Villas, Stoke.
1882	Debnam, Alfred R.	35, Cambridge Street.
1881	Dyke, E. G.	The Workhouse.
1882	Dymond, C. W., M.Inst. C.E., F.S.A.	7, Clarendon Place.
1880	Edmonds, Robert G.	Mount Drake.
1882	Evans, H. Montague	South Devon Place.
1874	Fouracre, John T.	Chapel Street, Stonehouse.
1875	Fox, Francis E., B.A., F.R.G.S	Uplands, Tamerton Foliot.
1868	Fox, R. R.	Westbrook, Tamerton.
1851	Harper, T., M.R.C.S.	1, Gibbon Street.
1852	Hine, James, F.R.I.B.A.	Mulgrave Place.
1867	Hingston, C. Albert, M.D.	2, Sussex Terrace.
1875	Hughes, R. H., M.A., M.B., M.R.C.S.	12, Lockyer Street.
1876	Inglis, James C., C.E.	64, Emma Place, Stonehouse.
1881	Inskip, Capt. G., R.N., F.R.G.S.	Houndiscombe Place, North Rd.
1868	Jackson, George, F.R.C.S.	1, St. George's Terrace.
1851	Jago, George	Cobourg Street.
1882	Jago, C. S.	Cobourg Street.
1882	Jewers, Arthur J., F.S.A.	7, Nottingham Place, Mutley.
1851	Keys, I. W. N.	Whimble Street.
1875	Lewis, Lewis, L.R.C.P. London	1, St Michael's Terrace.
1873	Liscombe, Robert Lavers	Mount House, near Plymouth.
1880	Macliver, P. Stewart, M.P.	Ardnave, Weston-super-Mare.
1881	Mellone, Rev. W. E.	4, Napier Street, Stoke.
1874	Merrifield, John, PH.D., F.R.A.S.	Gascoyne Place.
1862	Mitchell, Philip	Bedford Terrace.
1851	Moore, W. F.	The Friary.
1870	Morley, The Right Hon. the Earl of.	
1861	Mount Edgecombe, The Right Hon. the Earl of.	
1878	Neild, Frederic, M.D.	6, Sussex Terrace.
1881	Odgers, William Ernest	9, Paradise Place, Stoke.
1874	Oxland, C.	Portland Square.
1851	Oxland, R., PH.D., F.C.S.	Portland Square.
1871	Pearse, W. H., M.D.	1, Alfred Place.
1880	Power, W.	7, Sussex Street.
1859	Prowse, A. P.	Yanadon, Horrabridge.
1880	Reed, William Cash, M.D.	9, Princess Square.
1880	Rew, G. Gale	40, Torrington Place.
1875	Rider, A., F.C.S.	4, Haddington Road, Stoke.
1857	Risk, Rev. J. Erskine, M.A.	Princess Square.
1861	Rowe, J. Brooking, F.S.A., F.L.S.	Mulgrave Street
1875	Sharman, Rev. W., F.G.S.	20, Headlands Park.
1860	Shelly, John	Princess Square.
1875	Smith, Robert	Bedford Street.
1867	Slater, D., M.A	Cheveley Hall, Seymour Road.

LECTURING MEMBERS—*continued.*

Elected.	Name.	Address.
1869	Square, W., F.R.C.S., F.R.G.S.	Portland Square.
1876	Tippetts, G. E.	The Mount, Mannamead Avenue.
1865	Tweedy, W. Gage, B.A.	Athenæum Terrace.
1881	Uglow, Richard C.	63, Cambridge Street.
1875	Webb, F. J., F.G.S.	13, Portland Villas.
1875	Weekes, Samuel	Sussex Terrace.
1876	Windeatt, Edward	Bridgetown, Totnes.
1873	Woolcombe, R. W.	St. Jean D'Acre Terrace, Stoke.
1879	Worth, R. N., F.G.S.	4, Seaton Road.
1878	Wright, W. H. K.	7, Headlands Park.

"The property of the Institution, the election of members, management of the concerns, and enactment of laws, are vested exclusively in the Lecturing Members."—Law 2.

ASSOCIATES.

Allport, S., 48, North Street	Cook, William, Regent Street
Adams, Benjamin, Walmer Villa	Cox, G., Manor Office, Stonehouse
Andrews, Thos. N., Charles School	Daubeney, Capt. G. A., Naval Bank
Appleton, Edward, A.M.I.C.E., 1, Vaughan Parade, Torquay	Dawe, R. H., Buckland Terrace
Barrett, Frederick, Pearson Terrace	Deacon, Josiah, 45, Durnford Street, Stonehouse
Barrett, G. R., Bank of England Place	Derry, Wm., Houndiscombe House
Barrett, J., 8, Staddon Terrace	Deutsch, Herr, 5, Crescent Place
Bayly, John, Seven Trees	Diment, Thomas, Laira House
Bayly, Robert, Torr Grove, near Plymouth	Dobell, Douglas, 1, Auburn Place
Bazeley, William, Princess Square	Elliott, E., Lockyer Street
Beck, W. C., R.N., 12, Paradise Row, Stoke	Ellen, J. B., 14, The Crescent
Beechey, Admiral, R.N., St. James's Terrace	Evans, Godfrey H., 4, Rochester Ter.
Bellamy, G. D., Endsleigh Place	Foster, J. B., 4, Cambridge Street
Bennett, John, Princess Square	Fowler, F. F., Fernleigh Road
Besley, John, 5, Houndiscombe Place	Francis, H., 22, Ker St., Devonport.
Bignell, George C., M.E.S., 8, Clarence Place, Stonehouse	Freeman, Francis Ford, Leigham Ter.
Bond, A. James, 6, Gascoyne Place	Gale, Dr. J., M.A., F.G.S., F.C.S., Lockyer Street
Brendon, W. Turner, George Street	Gibbons, Wm., 35, Tavistock Place
Brittain, C. E., 7, Woodside	Goulding, F. H., George Street
Brown, George H., Mill Lane	Goad, J., 1, Buckingham Place, Stonehouse
Brown, Henry, North Hill House	Graves, John, 21, St. Aubyn Street, Devonport
Browning, F., Priory Cottage, Compton	Greenlaw, William, Lipson Cottage
Bull, Frederick, 7, Brunswick Terrace	Haite, John, C.E., Dockyard, Devon- port
Bulteel, Thomas, Radford	Haldane, Alex., 10, Athenæum Ter.
Chalker, John P., Crescent Place	Hall, Frederick, George Street
Champernowne, A., F.G.S., Dartington House, Totnes	Hall, Rev. I. H., M.A., Albany Place
Clark, W., Thorn Park Villas	Harper, Cecil H., Gibbon Street
Cohu, W. R., M.A., Ford Park	Harris, Henry Vigurs, Union Street
Cole, A., Bedford Terrace	Harvey, J., Princess Square
Collier, F. Mortimer, Woodtown, Horrabridge	Header, J. Pollington, Westwell St.
Collins, John Ballard, 27, Torrington Place	Heath, William, George Street
Compton, C. E., 2, Mutley Park Ter.	Hele, John, Mus. Bac., 1, Wyndham Place
Congdon, W. T., Garfield, Mannamead	Hems, Harry, Fair Park, Exeter
	Hender, J., 6, St. Michael's Terrace
	Hendry, A. S., 6, Lockyer Street
	Hill, F. N., 9, South Devon Place

ASSOCIATES—*continued.*

Hoppen, Vosper, George Street
 Hubbard, G., Ford Park
 Hurrell, J., Great Western Docks
 Jago, Edward, 6, Athenæum Terrace
 Jago, Richard, Hallwell House, Hallwell Street
 James, Capt., R.W. Yacht Club
 James, C. H., Athenæum Street
 James, Edward, Greenbank
 James, E. H., Woodside
 James, J. Somers, Gt. Westn. Docks
 James, W. C., J.P., 6, Glenside, College Road
 Jameson, Dr., Compton Park House, Tavistock Road
 Jenkins, James, M.D., Nevingsstone, Mannamead
 Jones, Dr. C. Marchant, St. Andrew's Terrace
 Keen, Henry, St. James's Terrace
 Kendall, Miss A. C., Plymouth High School
 Kerswell, Alfred J., Ham Street
 Kerswell, Samuel, 1, Osborne Place
 Kerswill, F. J., Frankfort Street
 King, William, Hoe House
 Latimer, Alfred, Glen View, Fernleigh Road
 Lemann, Fred. C., Blackfriars House
 Luscombe, H. A., 35, Clifton Place
 Mabin, Francis, Hampton Street
 Martin, W. L., Windsor Villas
 May, J. H. Square, Portland Villas
 McAndrew, J., Lukesland, Ivybridge
 Mitchell, T., Eton Villas
 Morrish, F. A., 2, Bedford Terrace
 Morris, Charles, 5, Seymour Terrace
 Norman, John G., Sea View Terrace
 Opie, E., 5, Braidwood Terrace
 Page, James A., Windsor Terrace
 Page, S. J., Camden House, Prospect Street
 Payne, James, 21, Clarendon Place
 Pearse, Miss Alice, Connaught Terr.
 Pearse, S., Royal Hotel
 Pearse, T., M.D., Flora Place
 Penrose, Richard A., 74, Durnford Street, Stonehouse
 Penson, James, Boon's Place
 Pethybridge, H. M., Frankfort Chambers
 Philips, G., 1, Victoria Place, Stonehouse
 Picken, Samuel, Hill Park Crescent

Pike, W. H., Clock Tower Chambers, George Street
 Pinwell, Capt. Treharne, Truro
 Pode, J. S., Slade, Cornwood
 Prance, H. Penrose, 7, Athenæum Terrace
 Preston, H., Old Town Street
 Pridham, Edmund, 10, Princess Square
 Radford, C. H., 37, Bedford Street
 Radford, D., Lydford, Bridestowe
 Ralling, Octavius, 10, Windsor Place
 Randle, J., Union Street
 Rice, J., Athenæum Street
 Rees, James, 1, Citadel Terrace, Citadel Road
 Rorie, John, M.D., Ford Park
 Roy, David, 6, Holyrood Place
 Russell, George, Hoe Park House
 Serpell, E. W., 19, Hill Park Crescent
 Shelly, Arthur, 23, Woodland Terrace
 Smith, A. Bentley, Valletort Place, Stoke
 Soltan, G. W., Little Efford
 Square, Wm. Joseph, F.R.C.S., Portland Square
 Stephenson, G., Old Town Street
 Stephenson, R., National and Provincial Bank of England, Devpt.
 Stribley, Edwin, Belgrave Terrace
 Swain, W. Paul, The Crescent
 Tanner, C. F., Mutley House
 Taylor, Frank, 37, Flora Street
 Taylor, J., 37, Flora Street
 Thomson, Lewis C., Hillsborough, College Road
 Trubshaw, R. H., R.N., H.M.S. *Cambrian*, Naval Reserve
 Tucker, G. L., 9, Bedford Terrace
 Walkem, W. L., Emma Place, Stonehouse
 Watson, G. F., 42, Durnford Street, Stonehouse
 Wheeler, Rev. H., 41, Tavistock Place
 Widger, James, 14, Tavistock Street
 Williams, C. F., Plympton
 Williams, H. J., Polperro, Cornwall
 Willoughby, J., 11, Seaton Terrace
 Willoughby, W., The Foundry
 Wilson, J. Walter, Hoe Park Terrace
 Wills, J. C., 68, Durnford Street, Stonehouse
 Windeatt, John, Woodland House
 Woodhouse, Henri B. S., 15, Portland Square

LADY ASSOCIATES.

Adams, Miss Sophie, Walmer Villa, Mannamead	Hoblyn, Miss Zoe, Napier Cottage, Stoke
Bate, Miss, Mulgrave Place	Horncastle, Miss Emily, 7, York St.
Borland, Mrs. R., Emma Place, Stonehouse	Hurrell, Miss, Pennycross, near Ply- mouth
Bragg, Miss, Weston Lodge, Sey- mour Road, Mannamead	Minhinnick, Miss E. M., Gascoyne Place
Bragg, Miss S., Weston Lodge, Sey- mour Road, Mannamead	Parker, Miss S., Torrington House
Cann, Miss Agnes, 20, Tavistock Road	Popham, Miss, Rowden, Compton
Cocking, Miss Annie, 6, Seymour Terrace	Popham, Miss Isabelle, Rowden, Compton
Davey, Miss C., Wedgwood Villas, Ford Park	Rumble, Miss, Courtenay Street
Davey, Miss K., Wedgwood Villas, Ford Park	Spooner, Miss Annie, 23, Portland Square
Gidley, Miss, 2, St. Michael's Terrace	Treeby, Mrs., 297, North Road
Hoblyn, Miss, Napier Cottage, Stoke	Triscott, Miss, Sunnyside, Manna- mead
Hoblyn, Miss F., Napier Cottage, Stoke	Twose, Mrs., 4, Clarendon Place
	Waghorn, Miss, 12, Albany Place

JUNIOR ASSOCIATES.

Baly, Ernest, 81, King's Gardens
 Coad, jun., John Laskey, 26, Endsleigh Place
 Treeby, Harold, 297, North Road

OF

FOR THE YEAR ENDING 31ST MARCH, 1883.

We have examined the foregoing Account and Balance-sheet, and compared them with the Vouchers, and find the same correct,

(Signed) SAMUEL CATER, } *Treasurers.*
E. G. BENNETT, }

Dated 4th April, 1883.

(Signed) H. M. EVANS, }
C. W. DYMOND, } *Auditors.*

SECRETARIES' REPORT.

1882-83.

THE Secretaries present the following Report of the Proceedings of the Society during the Session 1882-83. The Meetings have been well attended ; for although on several evenings the weather has been very inclement, yet the average attendance has been eighty-two.

The Lectures, of which there were twenty-three, were delivered as announced on the lecture-cards, with two exceptions—the Rev. J. Erskine Risk having been prevented reading his paper on “Some Recent Revisions of Plymouth History,” his place was supplied by the Rev. W. Sharman, with a paper on “Vegetarianism;” and a paper on “The Duc de St. Simon” was read by M. Brugmann, instead of the one first announced.

The Lectures were as follows ; viz. :

1882.

Oct.	5.	Conversazione.		
„	12.	President's Address.		
„	19.	A Long Vacation	Mr. ROBERT COLLIER.	
„	26.	Ventilation	Mr. C. W. DYMOND, F.S.A., M. INST. C.E.	
Nov.	2.	Modern Yachts	Mr. W. GAGE TWEEDY, B.A.	
„	9.	The Basis of Mr. Herbert Spencer's Psychology . .	Rev. Prof. CHAPMAN, M.A.	
„	16.	Sanitary Axioms and Municipal Bye-Laws	Mr. APPLETON, A.M.I.C.E.	
„	23.	The Life and Poetry of Words- worth	Rev. W. E. MELLONE.	
„	30.	Lighting and Heating . .	Dr. R. OXLAND.	
Dec.	7.	Sanitary Science, No. 2 . .	Mr. A. R. DEBNAM.	
„	14.	Vegetarianism	Rev. W. SHARMAN, F.G.S.	
„	21.	The Founders of Charles Church	Mr. E. G. BENNETT.	

1883.

Jan.	4.	Conversazione.	
	11.	The Duc de St. Simon . . .	Mr. O. W. R. BRUGMANN.
	18.	Heraldry, its History and Use .	Mr. ARTHUR J. JEWERS, F.S.A.
	25.	Poetry, Defined and Classified .	Mr. C. W. DYMOND, F.S.A.
Feb.	1.	Water, its Health Aspects .	Mr. AUGUSTUS H. BAMPTON, M.D.
	8.	Julius Cæsar	Mr. W. J. SQUARE, F.R.C.S.
	15.	Queries in Local Topographical Botany, Part 2	Mr. T. R. A. BRIGGS, F.L.S.
	22.	Our Danish Ancestors . . .	Mr. D. SLATER, M.A.
Mar.	1.	More Recent Phases of the Germ Theory	Mr. W. CASH REED, M.D.
	8.	The Relations of the Planets Venus and Mars to the Earth	Rev. W. S. LACH SZYRMA, M.A.
	15.	Flame	Mr. A. RIDER, F.C.S.
	22.	The Place of the Lower Animals in our regard	Mr. H. M. EVANS.
	29.	Sir John Hawkins: Sailor and Statesman	Mr. R. N. WORTH, F.G.S.

Five lecturing members, nineteen associates, and fifteen lady associates have joined the Society during the Session, the numbers on the books being eighty-one lecturing members, one hundred and fifty-three associates, twenty-five lady associates, and three junior associates, being an increase on each denomination of Subscribers over those of the former Session.

The Museum and Art Gallery having been completed, were opened on Tuesday, March 27th, by the Worshipful the Mayor of Plymouth, in the presence of the Worshipful the Mayor of Devonport, the Chairman of the Local Board of Stonehouse, the President, and a large assemblage of the members, associates, and subscribers and their friends, including many ladies—the President on the occasion explaining the proceedings in reference to the building, and the objects for which the Museum had been established; and the Treasurer giving an account of the financial position of the Society in reference to the subscriptions obtained, and the amount expended for the new buildings.

The Curators have devoted much time and attention to the arrangement and classification of the valuable collections belonging to the Society, and the Museum is now well worthy the notice, not only of students in the various departments, but of those whose knowledge is of a higher character.

At the Anniversary Meeting, held on 2nd May, 1882, short papers were read.

The British Archæological Association, under the presidency of Sir James Picton, F.S.A., held their Annual Congress at Plymouth, in August, 1882, and the use of the halls of the Institution was granted for the evening meetings of the Association, whose members highly appreciated this attention on the part of our Society.

There were two conversaziones held during the Session. At the first, on 5th October, 1882, the pictures of the Art Club, who had been granted the use of the Fine Arts Gallery for their annual exhibition, were still remaining on the walls, and were much appreciated, and during the evening a selection of vocal and instrumental music was kindly given by the Misses Risk, Miss Triplett, Mr. W. Square, and Mr. Samuel Weekes.

At the second conversazione the Museum was thrown open. Short papers were read by the President, Dr. Oxland, and Mr. F. J. Webb; whilst an excellent selection of music was given by Mr. A. C. Faull, Miss Webb, and Messrs. Pardew and Wills. Both conversaziones were very largely attended.

The Curator of Geology reports :

“The space allotted by the Council to the Geological collection in the new Museum comprises the seven table cases in the centre of the floor, together with the wall cases in the northern gallery. In consequence of the large additional exhibition space, it has been possible to display to advantage the valuable collections belonging to the Institution. At present there is ample space in six of the cases for the proper display of that which has special reference to the two counties. Should the purely local specimens increase in number in the future to any very great extent, either the seventh case may be appropriated to this purpose, and its contents placed in drawers, or the general plan of floor cases may be carried on by placing others between those already in position.

“The two eastern cases are entirely occupied by the Osseous collection from the various limestone caves and fissures of Devon. The southern of the two contains those from Oreston, Pomphlett, and Battery Hill (Stonehouse). The northern, those from the Hoe; Kent's Cavern, Torquay; Pixies' Hole, Chudleigh; Ash Hole, Brixham; and Yealm Bridge Cave.

"The southern of the next pair of cases contains the Devonian corals from the limestone rocks of South Devon, while in the northern is arranged the general collection of Devonian fossils, chiefly mollusca.

"The case to the west of the last named is occupied by the valuable and unique Harding collection of North Devon Carboniferous fossils, and others of the same series from North Devon.

"In the next case to the west are displayed the Cretaceous (Neocomian) fossils from Haldon and Blackdown; the Triassic series, from Budleigh Salterton (containing embedded Silurian fragments) and Torbay; the Liassic series, representing the extreme east of Devon; and the Silurian fossils from Gerrans, from the opposite shores of Cornwall.

"It will thus be seen that, with the exception of the Permian (which is only slightly represented in the North of England) at one end, and the Cambrian at the other end, we have included within the two counties of Devon and Cornwall representatives of the whole of the Palaeozoic strata, and the whole of the Mesozoic except the Oolite, and this is but just on the outside of the eastern border of Devon. The Cainozoic strata are only represented by the Miocene lignites, leaf-beds, and clays of Bovey Tracey. To adequately illustrate Devon and Cornwall geology all these strata should be represented as completely as possible, care being taken to distinguish between those produced by the two counties and the gaps supplied from without.

"The seventh case—to the south of the last two named—is devoted to typical specimens from the Silurian, Carboniferous, Oolite, Cretaceous, Eocene, Miocene, and Pliocene. Most of these specimens have been in the possession of the Society for fifty years, but have never been exposed to view until now.

"Up to the present time the main work accomplished is merely that of general classification and identification of localities. The next stage will be that of naming. This will be proceeded with as rapidly as circumstances will permit. For the benefit of those of the general public who may be using the Museum, descriptive labels are being prepared which will be attached to each group or series.

"The complete overhauling of the several collections, rendered necessary by the recent alterations, has revealed the existence of large numbers of rock specimens from various parts. Intrinsically

these are valuable, and many are polished. Looking at the present state of geological science, and the fact that recently the new science of Petrology has been developed by the aid of the microscope, as that of Mineralogy was also long since propagated, it has been thought desirable to place these by themselves as a nucleus of the distinct branch of Petrology, and this has consequently been done. Several additions have already been made, among which may be mentioned a series of polished Devonshire marbles by Mr. J. Goad, and a series of rocks, from the neighbourhood of Cawsand Bay and other places in the locality, by Mr. Worth. The Borough Surveyor has also arranged to reserve samples of all the trap rocks received from the various trap quarries of the neighbourhood. Specimens of granites, &c., have likewise been promised. This department therefore bids fair to become one of very considerable importance. Hence it is that a proposition will be submitted to the Annual Meeting to appoint an independent Curator to this department, as has already been done in the case of Mineralogy. The space occupied by this collection in the northern Gallery is fitly placed in juxtaposition to the mineralogical cases.

“The economical necessity for such a collection as that now indicated may be seen in the difficulty recently experienced in the selection of suitable stones for the erection of Truro Cathedral; and, to refer to another case nearer home, it may appear incredible that the officials of the Works Department of the Home Office were actually ignorant of the existence in this locality of any building stones suitable for such a building as that now being erected in Westwell Street for the new Post-Office! This accounts for its being built of brick and Bath stone. In fact we are having a London building transplanted to Plymouth.”

The Curator of the Library reports :

“Beyond the matters yearly requiring mention in connection with the Library of the Plymouth Institution there is little to report at the present time. Many volumes of serials have been bound, parts of ‘Transactions’ and ‘Reports’ of other learned and scientific societies received, and some purchases made for the library. A short time ago it was found impossible to arrange all the volumes on the shelves for want of space, and a resolution of the Council authorised the sale of the ‘Delphin Classics’ set, by the disposal of

which sufficient space has been secured to meet the requirements of a year or two, provided nothing beyond the average additions be made to the books within this period.

“The following is a list of the works received in exchange for the ‘Transactions’ printed by the Society: Belfast—‘Report and Proceedings of Naturalists’ Field Club,’ series ii. vol. ii. part 1. Berwickshire—‘Proceedings of Naturalists’ Field Club,’ vol. ix. No. 3. Bristol—‘Proceedings of Naturalists’ Society,’ vol. iii. N.S. part 3, 1881–82. Canada—‘Geological and Natural History Survey of Canada.’ Report of Progress, with Maps (4 sheets). Cornwall—‘Journal of the Royal Institution,’ vol. vii. part 2, April; part 3, Dec. 1882; ‘Polytechnic Report,’ Falmouth, 1881. Epping Forest and Essex—‘Transactions of the Naturalists’ Field Club,’ vol. ii. part 6, July, 1882. Glasgow—‘Transactions of the Society of Field Naturalists,’ parts 2–5 (inclusive), 1873–78; ‘Proceedings of Natural History Society,’ vol. v. part 1; all from the Natural History Society. London—‘Proceedings of the Geologists’ Association,’ vol. vii., Nos. 4–7. Annual Report, 1882; ‘Quarterly Journal of the Geological Society,’ Nos. 150–153; ‘Proceedings of Royal Society,’ vol. xxxiii., Nos. 219–222; ‘Journal of Royal Microscopical Society,’ series ii. vol. ii. parts 2–6; ‘Proceedings of Zoological Society,’ part 4, 1881; parts 1–3, 1882. List of Fellows, June, 1882. Index to vols. from 1871–80. Norfolk and Norwich—‘Transactions of Naturalists’ Society,’ vol. iii. part 3, 1881–82. New South Wales—Liversidge’s ‘The Minerals of New South Wales,’ ed. 2. Annual Reports of Department of Mines, 1880–81; ‘Journal of the Royal Society,’ 1881; ‘Report of the Progress and Condition of Botanic Garden and Government Plantations,’ 1881. By D. Schomburgh, 1881; ‘Catalogue of the Australian Stalk and Sessile-eyed Crustacea.’ By W. A. Haswell. From trustees of Australian Museum, Sydney; ‘Report of the Australian Museum, Sydney, New South Wales,’ by T. Richards, 1881. Penzance—‘Catalogue and Library of Royal Geological Society.’ By W. A. Taylor, 1882; ‘Report and Transactions of the Natural History and Antiquarian Society,’ 1881–82. Pisa—‘Atti della Società Toscana di Scienze Naturali.’ Parts of vol. iii. Somersetshire—‘Proceedings of the Archæological and Natural History Society,’ 1881. United States—‘Smithsonian Report,’ Washington, 1880. List of Foreign Correspondents, 1882.

The following works have been presented by members and friends of the Institution: British Association—'Report,' 1881; from the Society. Rowe, J. Brooking—'Address to Members of the Devonshire Association,' large paper reprint; from the author. Brent—'Canterbury in the Olden Time.' By J. Brent, F.S.A.; from Mr. F. Brent. Devonshire Association—'Report and Transactions,' vol. xiv., 1882; from the Society. Dymond, C. W.—'Duloe Stone Circle,' from the author. Geographical Society—Many numbers of 'Proceedings;' from Mr. W. Square. Hooker and Taylor—'Muscologia Britannica,' ed. 2, 1827; from Mr. F. Brent. Hooker—'English Flora,' vol. v. Cryptogamia; from Mr. F. Brent. Linnæan Society—'Journal of Zoology,' Nos. 93-97; from T. R. A. Briggs. Midland Union of Natural History Societies—'Report,' 1882. Plymouth Free Public Library—'Index Catalogue of Lending Department; from the Librarian.

"The following works have been purchased: '*Challenger* Expedition Report,' vols. iv.-vi.; 'Zoology:' Narrative, vol. ii.; 'Folk-Lore Record,' vol. v.; 'The Book of Sindibad' (Folk-Lore Society), 1882; 'Index to Ibis,' 1859-76; 'Jago's Glossary of the Cornish Dialect;' 'Palæontographical Society's Monographs,' vol. xxxvi.; Ray Society's vols.—'Bowerbank's Monograph of the British Spongiadæ,' vol. iv.; 'Cameron's Monograph of the British Phytophagous Hymenoptera,' vol. i. 'Western Antiquary,' current numbers of. Willughby Society—'Forster's Catalogue of the Animals of North America;' 'Forster's Animals of Hudson's Bay;' 'Yarrell's History of British Birds,' parts 14, 15, ed. 4; 'Fauna and Flora of the Bay of Naples,' monographs vi. viii.; 'Zoological Record,' 1881."

The Curator of Vertebrate Zoology reports :

"The collections of specimens in this department, which were removed to the cellars and lofts during the building of the new Museum, have been placed in the cases.

"Your large and valuable collection of birds has been added to by the gift of a valuable collection by T. Bulteel, Esq.

"This collection, together with that of mammals and fishes, has been placed in the cases provisionally, preparatory to a better classification, which your Curator has not had time enough to make. The collection of mammals has been enriched by a specimen of the *ornithorhyncus*, presented by Mr. J. Windeatt.

“Your collection of skulls, which has hitherto been concealed in a lumber-room, has been arranged in one of the cases, and, so far as possible, classified and named. It possesses some valuable specimens, but is very imperfect, and additions to this department in the way of gifts would be very acceptable.

“Two fine rostra of Sawfish have been presented to it by Mr. W. J. Square; and the skulls of Badger, *Thylacinus*, and part of the skull of *Phacochœrus*, together with some *Rhinoceros*’ teeth, have been presented by the Curator.”

FRANCIS BRENT, } *Hon. Secs.*
J. C. INGLIS, }

METEOROLOGICAL REPORT.

SUNSHINE IN PLYMOUTH FOR 1882.

MONTH.	Sun above the horizon. hrs. min.		Sun shone in Plymouth. hrs. min.		Percentage actual was of possible.		No of days no sunshine.
January	259 56	..	35 40	..	13·7	..	21
February	276 57	..	68 8	..	24·6	..	9
March	363 41	..	141 45	..	39·0	..	7
April	408 58	..	170 45	..	41·8	..	4
May	473 11	..	257 30	..	54·4	..	1
June	483 58	..	183 10	..	37·8	..	4
July	477 6	..	202 0	..	42·3	..	1
August	442 21	..	185 10	..	41·9	..	2
September	373 22	..	148 25	..	39·7	..	7
October	326 49	..	76 0	..	23·3	..	11
November	264 33	..	65 0	..	24·6	..	11
December	244 17	..	26 35	..	10·9	..	22

The sunshine was 32·8 per cent., or nearly one-third of the time the sun was above the horizon ; whilst on 100 days he did not appear in Plymouth. The year has been rather warmer than the average, caused entirely by warmer nights. The freezing point was reached only 12 times during the year, 6 of which occurred in December. Snow fell only on 2 days, and came on early in December. Rain fell on 219 days to the amount of 41·21 inches. The greatest rainfall in one day was on 31st August, when 1·28 inches were measured ; but more than an inch fell on 3 days during the year. The highest barometer for the year was 30·952 on 18th January. This is the highest ever recorded in Plymouth. The lowest was 29·051 on 1st March. The atmospheric pressure did not fall below 29 inches for the year. The highest temperature for the year was 75 deg. F. on 12th August, the lowest 22·8 deg. F. on 11th December.

COLD MONTHS.—April, June, July, August, September, October, November.

WARM MONTHS.—January, February, March, May, December.

WET MONTHS.—April, June, July, August, September, October, November, December.

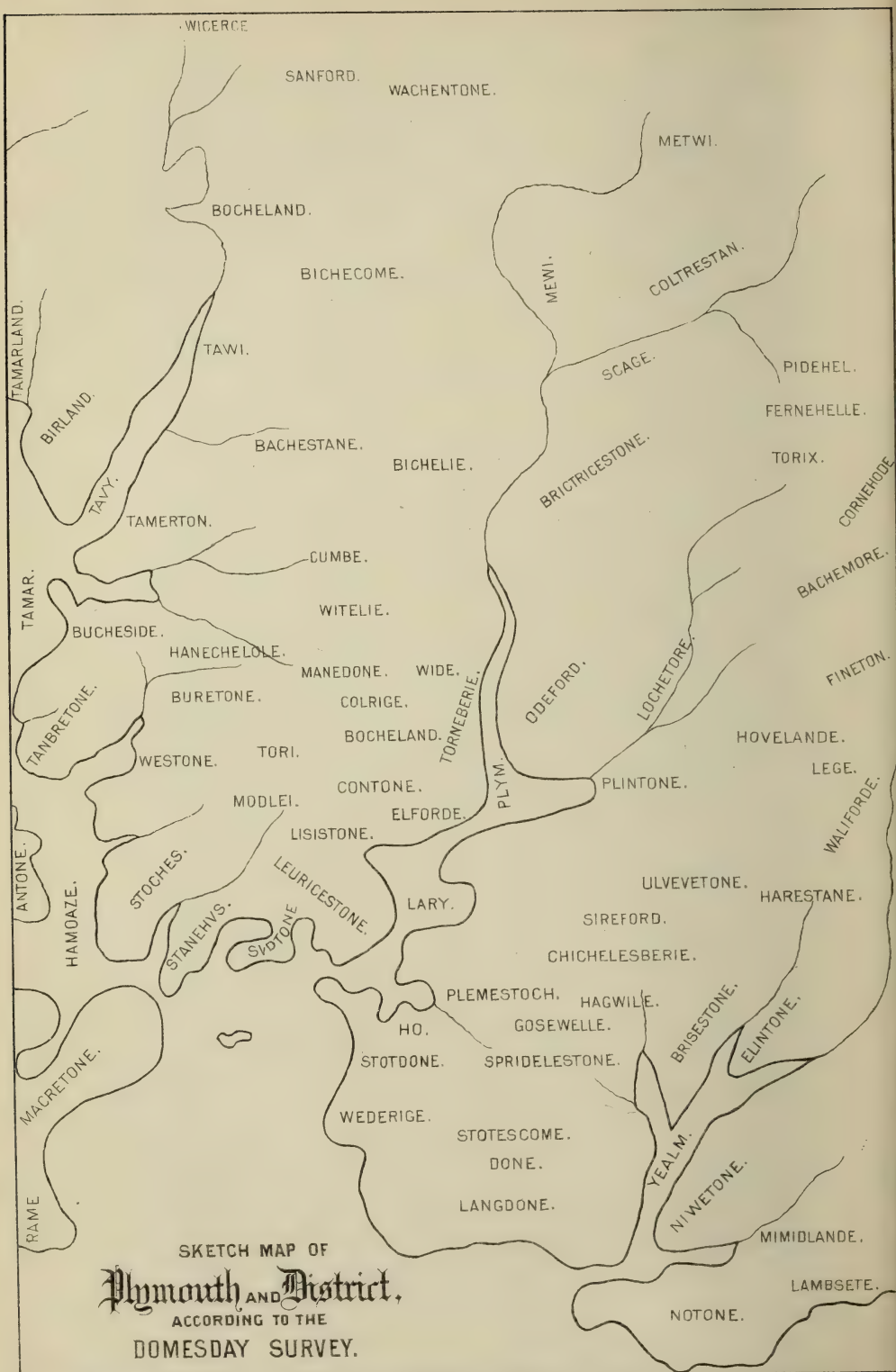
DRY MONTHS.—January, February, March, May.

The year on the whole has been a very wet one, there having been 22·3 per cent. more rainy days, and nearly 14 per cent. greater rainfall than the average, thus showing the continuous drizzle we have been subject to. This perhaps has been caused by the large proportion of westerly winds we have experienced. The longest dry period was from the 5th to the 20th May ; the longest wet period from the 24th September to the end of the year, during which period we had only 21 days with not enough rain to measure. Gales were experienced in February, March, April, and November. During September and November there were frequent flashes of lightning, with little or no thunder.

An ABSTRACT from the METEOROLOGICAL REGISTER, from 1st January, 1882, to 31st December, 1882, kept at the Navigation School, Gascoigne Place, Plymouth (Lat. $50^{\circ} 22\frac{1}{2}'$ N., Long. $4^{\circ} 7\frac{1}{4}'$ W.), by JOHN MERRIFIELD, LL.D., F.R.A.S., F.M.S.

MONTH.	BAROMETRICAL PRESSURE REDUCED TO MEAN SEA LEVEL AT 32° FAH.			TEMPERATURE.			HYGROMETER.				RAINFALL.		DIRECTION OF WIND AT 8 A.M.				
	Average Barometer	Maximum for Month.	Minimum for Month.	Average in shade.	Average Minimum.	Average temperature.	Average dry Bulb.	Average wet Bulb.	Average dew Point.	Average humidity, saturation, 100.	No. of days on which not less than 0.1 in. fell	Quantity in the month in inches.	From N. by E. to E.	From E. by S. to S.	From S. by W. to W.	From W. by N. to N.	Calm
1882																	
January .	30.340	30.952	29.358	48.86	40.17	44.52	43.74	42.65	41.34	91	16	2.05	4	12	8	4	3
February .	30.244	30.914	29.076	50.68	39.32	45.00	42.95	42.09	41.06	93	11	1.93	8	6	5	5	4
March . .	30.069	30.661	29.051	53.42	40.81	47.12	43.96	42.59	40.95	89	17	1.07	1	3	14	9	4
April . .	29.754	30.272	29.266	56.21	43.31	49.76	48.42	46.49	44.37	86	23	5.66	5	11	6	6	2
May . .	30.016	30.455	29.360	62.04	47.15	54.55	55.13	51.50	49.97	75	10	.85	13	2	10	4	2
June . .	29.945	30.229	29.574	63.45	51.47	57.46	57.10	54.41	51.99	81	20	3.67	2	4	11	9	4
July . .	29.877	30.469	29.865	66.32	54.76	60.54	60.27	57.61	55.32	84	18	3.79	0	2	18	5	6
August . .	29.971	30.360	29.379	67.99	54.76	61.38	60.85	58.15	55.82	84	15	2.71	3	1	16	7	4
September.	29.972	30.367	29.316	61.74	47.86	54.80	53.39	51.67	49.95	87	17	4.19	9	1	6	8	6
October .	29.808	30.532	29.155	57.41	45.43	51.42	49.88	48.09	48.09	84	22	5.96	7	5	8	9	2
November.	29.778	30.185	29.324	51.30	40.76	46.03	44.17	43.07	41.75	91	24	4.04	5	2	10	13	0
December .	29.666	30.260	29.087	47.85	38.62	43.23	42.29	41.71	41.01	95	26	5.29	8	4	10	5	4
Average for 1882	29.953	30.471	29.276	57.27	45.37	51.32	50.18	48.41	46.62	88	219	41.21	5.42	4.42	10.17	7.00	3.42
Average for 18 Years . .	29.946	30.399	29.310	58.03	45.01	51.52	50.68	48.78	46.80	87	179	37.03	6.51	5.33	8.83	6.99	2.75

The observations are all made at eight a.m. The Rain Gauge is by Casella, and is 8 inches in diameter; its top 9 feet 2 inches above the ground, and 75 feet above the mean level of the sea. A rainy day is one in which not less than 1-100th of an inch falls. The instruments have all been supplied by the Meteorological Committee of the Royal Society, compared at Kew, and the index error supplied to each.



ADDRESS

AT THE OPENING OF THE SESSION 1882-83.

BY R. N. WORTH, F.G.S.,
President.

LADIES AND GENTLEMEN,—

Placed by the favour of my brother members of the Plymouth Institution for a second time in this chair, I have thought it desirable to take, as the subject of my address this evening, some further inquiry into the earlier history of our county ; but chiefly into that of Plymouth and its immediate neighbourhood. Last year I endeavoured to sketch, as fully as time and the conditions of my subject allowed, the leading features of Prehistoric Devon, defining as prehistoric in this relation “all that is antecedent to the Saxon Conquest of the county.” That conquest my friend Mr. J. B. Davidson had shown must have taken place between the year 710, in which King Ine fought the Welch king Gereint, and the year 823, in which the Weala and the Defena—the men of West Wales (= Cornwall) and the men of Devon—fought a battle at Gafulford ; while further considerations narrowed its possible limits between the year 728, in which Ine abdicated, and 800, in which Ecgberht came to the throne. The only one of the Saxon kings of Wessex filling the interval to whom the conquest can reasonably be assigned is, as I have already said, that Cynewulf (755-784) who is recorded to have fought so many battles against the Western Welch—the “Brit-Wealas,” the Keltic dwellers in Devon and in Cornwall. And while this is inferential, I may remind you of the direct statement of William of Malmesbury, that the first great military act of Ecgberht was the conquest of Cornwall (*circa* 813) ; and his equally direct assertion that in 936 Æðelstan drove the Britons out of Exeter, which up to that time they had inhabited,

sharing equal rights with the English, and fixed the boundary of his province along the Tamar. That is to say, and in my former address I adduced various arguments in support of the contention, the action of Æðelstan made Devon wholly Saxon, and left none of the free Keltic race east of the Tamar, save that perchance here and there in the remoter recesses of the uplands a stray family, or even a petty settlement, escaped observation.

What I wish, so far as possible, to do now is to link on this Prehistoric Past, of which I have already spoken in rapid outline, to our Historic Present, and especially to give you, as completely as I am able, a sketch of this immediate locality during the Saxon period.

We may divide the history of Saxon Devon into three epochs :—

First, the stage of individual colonization by small bodies of men, who planted themselves on Dunmonian soil, either by force or peaceably, gradually encroaching upon the scattered Keltic population, until Exeter itself became so thoroughly Saxonised that towards the close of the seventh century it had a Saxon school, in which Winfred, of Saxon Crediton, the famous Boniface, was trained.

Second, the era of subjugation, dating from the conquest of the Kelts under Cynewulf to their expulsion by Æðelstan. (926.)

Third, the time of undivided Saxon sway, from the Keltic expulsion by Æðelstan to the Norman Conquest. (1066.)

The whole period assignable to Saxon intercourse and rule in Devon would thus extend over four-and-a-half centuries; for Winfred could not have been born in Crediton and educated in Adescancastre, if there had not been a large and fairly concentrated Saxon population in the neighbourhood of Exeter towards the close of the seventh century.

Roughly taken, each of these epochs covers a century and a half. Settlement must have commenced early in the seventh century, and 150 years from 625 brings us to the latter end of the reign of Cynewulf (775); another 150 carries us on to Æðelstan (926); and quite as many years elapsed ere the Conquest begun at Senlac was fully complete.

I have no intention of repeating what has been already said concerning the early Saxon history of Devon. Still less shall I

venture to trace the full history of Saxon intercourse and rule. That is a Herculean task, too great for present treatment, were I qualified for the attempt. It is quite true that the *Saxon Chronicle* is the only history that gives us contemporary information worthy of the name respecting Saxon Devon; and that its local references are very scanty; but fortunately there are extant a large number of Anglo-Saxon charters and deeds relating to the county, and these, when carefully examined, throw much light upon this obscure but most interesting period of our western history. The *Chronicle*, so far as Plymouth is concerned, can hardly be said to afford any light whatever; for its only references to the locality are to Wembury (?), Tavistock, and Lydford, and these in connection with raids by the Danes.¹

It is to Domesday Book that we must turn as our chief source of information concerning Saxon Devon, as well as Saxon England.

But before I confine myself to more local details there is a branch of the history of Saxon Devon which has not, so far as I am aware, been brought under special review, and upon which I wish to remark, since it plays an important part in bridging over the interval between the Prehistoric and the Historic Periods. It has already been shown that "the constitution of Devon is purely Saxon from village to shire; each of its hundreds has a Saxon name; each of its ancient municipalities originated in a Saxon community."

While attempting to bring into one focus the light which the Domesday Survey throws upon the conditions of this part of the county immediately before and after the Norman Conquest, it occurred to me that there were valuable hints to be gleaned, not only from the distribution of the place-names, to which I have already referred, but from the character and distribution of the hundreds—a relic of Saxon organization which has descended to us in little more than a nominal form, but which before the invasion of the Norman had great living force, as the link in the hierarchy of jurisdiction between the court of the township or tything and that of the shire.

A hundred in its origin did not, of course, mean what we understand by a hundred now; it was a numerical term, not a territorial. That a hundred was made up of ten tythings, and that it had a

¹ Asser goes no further.

more indefinite relation to a shire, all authorities are agreed ; but there is much difference of opinion as to what the numerical hundred originally represented. Whether a hundred consisted of a hundred families, and the district in which they dwelt ; or a hundred warriors, and their district ; or the original settlement of the hundred warriors ; and whether the hundred is to be regarded as the ordinary hundred or the Saxon long hundred of one hundred and twenty—these are all more or less debated points. It is clear, however, that territorial hundreds sprang out of numerical hundreds, which bore some definite numerical relation to their free Saxon inhabitants. It is certain also that we cannot be very far wrong if we treat the original hundreds as consisting of families, and as comprising a free population therefore of five to six hundred souls. You see at once what a valuable clue we have here to the density and distribution of the population of the country in Anglo-Saxon times—in the earliest days of organization and rule.

We cannot say when the first division into hundreds took place. It is one of the many good works popularly ascribed to Ælfred, who, as the great Anglo-Saxon lawgiver, has been credited with almost all pre-Norman reform and progress. But while on the one hand hundreds are not mentioned until the time of Eadgar, so, on the other, they were then no new invention, but a direct development of an earlier polity of the Teutonic race ; and, whatever their exact date and origin, we may be sure that when the Saxon Conquest of Devon was complete, and the Saxons in Devon assumed their own form of administration, then were established the courts of the *tything*, of the hundred, and of the shire.

As the hundred originally was numerical rather than territorial, while it remained a definite administrative factor it retained numerical value. Changes therefore were to be expected. The smaller the hundred the denser the population ; the larger, the more scattered. The increase of inhabitants in any particular locality was followed by a rearrangement of hundred boundaries, and an enlargement of their number. So on the other hand, a loss of population would lead to the disappearance of a hundred, or its amalgamation with another under the double name. The names of the hundreds were probably taken originally from the places where the courts met, which were either more central or more populous than other spots in the district. And here we have another clue to the early relative importance of localities.

The existence of detached parts of hundreds appears to point to two general conclusions. First, that the hundred was originally comprised within a continuous boundary, co-extensive with the most extended area occupied by what, to impress a geological term, I may call its outliers; and therefore that the interposed hundred must be regarded as of later origin. Second, that at the time when the new hundred was carved out of the old one, influences of a territorial, and probably personal, character were at work, which continued certain special spots in their old associations. There is some historical value too in the changes of names originally given to certain hundreds.

And now to apply these principles to Devon. The only complete materials for a knowledge of the ancient hundreds of Devon are found in the Exeter Domesday.¹

Three lists of the hundreds of Devon are contained in that volume. Two of these are simple enumerations of names; the third is a general statement of the contents of each hundred and of its taxation. The first has every appearance of being the oldest, and differs materially from the other two, which correspond more closely with each other, and indeed are all but identical. The third, which should appear to be the latest form, is not, however, quite that agreeing most nearly, so far as names go, with the hundreds of the present day,² which in certain features follow in preference either the first or the second. (Probably in some cases duplicate names were current.) These points will be clearly seen in the following comparative table, wherein I have called the three lists A B and C respectively.

A	B	C	Hidage.	Geld.	Modern Names.
				£ s. d.	
Hertilande	. Hertilanda .	Hertilande .	20	2 2 0	Hartland
Mertone	. Mertone .	Mertone .	48	8 12 6	{ Shebbear in part, prob- ably Winkleigh
Mollande	.				With South Molton
Toritone	. Toritone .	Toritone .	34	7 4 0	Black Torrington
Framintone	. Framintone	Framintone	20	2 14 6	Fremington
Tautone	. Tauuuetone	Tauuentone	42	10 0 5	North Tawton
Dippesforde	. Dippesforde .	Dippeforde .	39	7 12 0	Stanborough, Coleridge
Cerusuelles	. Carsuelle .	Carsewilla .	50	9 12 0	Haytor
Taintone	. Tainebruge .	Taintone .	30	5 0 0	Teignbridge
Wenford	. Wenforde .	Wenfort .	54	6 15 0	Wonford

¹ Of the two forms of the Devon Domesday the Exchequer is the later revised edition; the Exeter, as far as it goes, is much fuller in its details.

² These remain practically unchanged from the reign of Edward I., as shown by the Hundred Roll.

A	B	C	Hidage.	Geld.	Modern Names.
				£ s. d.	
Essemenistre .	Esseministre	Esseministre	50	8 4 0	Exminster
Clistone .	Clistone .	Clistone .	27	3 12 4	Cliston
Hermtone .					Ermington
Walchentone .	Ruebge .	Walchentone	25	4 16 0	Roborough
Plintone .	Plintone .	Plintone .	25	3 10 8	Plympton
Cædelintone .	Cadelintone	Cadelintone.	46	5 12 8	West Budleigh in part
Sulfertone .		Sulfertone .	52	10 6 6	Hayridge in part
Lifetone .	Listone .	Listone .	20	4 15 0	Lifton, Tavistock
Tueruetime .	Tuluertone .	Tuuuertone	20	2 14 0	Tiverton
Witric .	Wetrige .	Witric .	30	5 18 6	Witheridge
Clauuueton and Badentone .	Badentone .	Badentone .	25	4 16 4	Bampton
Scireuuelle .	Scireuuelle .	Scireuuelle .	50	8 10 0	Sherwill
Brantoneæ .	Brantone .	Brantone .			Braunton
Moltone .	Sut Moltone	Sut Moltone	22	2 8 7	South Molton
Chridiatone .	Crediatone .	Chridiatone.	20	4 3 3	Crediton
Hertesbie .					Axminster in part (?)
Budeleies .	Budeleia .	Budeleie .	72	12 5 5	East Budleigh
Cullintone .	Culitone .	Culintone .	25-3 vir	4 0 8	Colyton
Axamudes .	Alsemude .	Axemuda .	9-1 vir	1 1 5	Axminster
Axaministres .	Axeministre	Axemenistre	50	10 6 0	
Halsbretona .	Halbretona .	Hasbtone .	18½	3 18 0	Halberton
See Marie Otri .	Otrie .	Otri .	25	6 0 0	Ottery
	Alerige .	Allerige .	40	6 7 6	Hayridge
	Hamioth .	Hamiohc .	24	4 13 0	Hemiock
	Ofecolū .	Offecolū .	14	2 14 0	Halberton in part

The first list (A) thus contains the names of 32 hundreds, while B and C have 31 and 32 respectively; and the modern list totals 33.

The detailed entries in list C for Walchentone and Plintone hundreds are as follows:

In the hundred of Walchentone are 25 hides. The king has there of his tax £4 16s. for 16 hides, and the king and his barons have in demesne 6 hides, 1 virgate, and 2 fertins. Of these the king has in demesne 3 virgates, and Judhel 3 virgates, and Robert of Albemarle half a hide, and William of Pollei 1 hide and 3 virgates, and Robert the Bastard 1 virgate, and Alured 2 hides and 2 fertins, and Ruald 1 virgate, and for one hide which is claimed by the Hundredmen to hold by custom the king has no tax, and for one hide which is held by Godefrid de Valletort the king has no tax, and for 1 virgate and 1 fertin Frotmund of Reginald the king has no tax, and for 1 virgate and 1 fertin held by the Count of Moreton the king has no tax.¹

In Plintone hundred are 25 hides. The king has there of his tax £3 10s. 8d. for 11 hides and 3 virgates, and the king and his barons have in demesne 10 hides and 3 virgates and a half. Of these the king has 5 hides and a half, and William of Pollei 2 hides and 1 virgate, and St. Mary of Alentona 1 hide, and St. Peter of Plintona 2 hides, and Robert the Bastard 2 fertins, and for a hide which the Hundredmen claim by custom the king has no tax, and for half a hide which Serlo holds of Godfrido the king has no tax, and for half a hide which Adzo holds of Reginald the king has no tax, and for a virgate which Frotmund holds of Reginald the king has no tax.

¹ The tax was 6s. a hide, or equivalent at least to £10 now, and was the ancient Danegeld.

In all three lists there is something of a regular topographical arrangement, though B is more consecutive than A, and C than B; but even the last appears to bear traces of the joint work of more than one hand, which would account for the breaks in the continuity. The order of list A is shown in the table. C begins with Lifton, and passes in succession to Hertelande, Toritone, Framintone, and Mertone, forming group number one—West Devon. Next come Brantone, Scireuelle, Sut Moltone, Chridiatone, Tauuentone and Witric—North Devon. Then we have Tuuvertone, Clistone, Sulfertone, Hamiohc, Offecolum, Budeleie, Hasbertone, Otri, Axemenistre, Culintone, Axemuda, and Badentone—another group comprising the whole of East Devon, but not in such direct topographical order as the former. Lastly, there are Esseministre, Taintone, Carsewillia, Dippeforde, Cadelintone, Plintone, Walchentone, Allerige, Wenfort—group number four—South Devon. This group is the only one which there is any very great deviation from the natural sequence, and here we have only to place Cadelintone and Allerige after Wenfort to make the whole order thoroughly consecutive. It is impossible that such an arrangement can be accidental; and if we look at the map of Devon we shall see that it is really governed by the physical conditions of the county. The first group covers the district west of the Tavy and the Taw; the second that bounded by the Taw on the west, the Creedy and Exe on the east, and Dartmoor on the south; the third lies mainly east of the Exe; and the fourth starting from the Tavy follows round the flank of Dartmoor, and is bounded by the sea and the Exe south and east. The only point where there is any real absence of natural definition is in the vicinity of Exeter and Crediton, and this is precisely the neighbourhood in which there have been the greatest changes in the dispositions of the hundreds. All this seems very suggestive of the division of the county into four districts, treated as such either by the same party of Domesday Commissioners, or by parties acting independently, and in any case commencing their enquiries on the borders of Cornwall near some ancient ford or accustomed passage, and ending somewhere in the neighbourhood of Exeter.

Now these lists clearly show that, although the bulk of the Domesday hundreds may be much the same as those of the present day, there are important variations; while it seems certain, as already

noted, that those which have detached portions were formerly far more extensive than they now are, and have been limited by the encroachments of their neighbours. Such are Lifton, Hartland, Braunton, West Budleigh, Clyston, Wonford, and, so far as the isolated fragment of Devon, now part of Dorset, in which Ford Abbey is situated, Axminster.

Taking the names in order as they stand, we find that Merton is now represented by Shebbear and probably Winkleigh, having been one of the largest hundreds in the county at the time of the Survey. Molland, which only appears in A, is included with South Molton. Dippesforde and Hermtone must be taken together; but while the former appears in all three Domesday lists, the latter is seen in A only, and must therefore be included, for B and C, under one of the adjoining hundreds; that is, either under Plympton or Dippesford. When we consult the map we find that Diptford, whence the old hundred was named, is fairly central for the three modern hundreds of Ermington, Stanborough, and Cole-ridge. It is certainly represented by the two latter, and I believe that it also included the greater part of Ermington, while Plympton took in the portion between the present boundary of that hundred and the Erme. We may perhaps find the reason for the disappearance of Ermington in the fact of the ravages committed on that part of the coast from the sea—partially depopulating the district—and this would help to fix the date of the first list as antecedent to the great Danish invasions. Carswell Hundred is Haytor; and the only thing to notice in Teignbridge is, that the modern name follows list B instead of the other two, which read Teintone. My impression, from the present aspect of the boundaries, is, that there has been a considerable change here, and that Wonford Hundred once occupied the full area of both. Neither Wenford, Esseministre, nor Clistone need further comment now, and Hermtone has been dealt with.

We next come to a hundred which the Lysons were unable to identify, but which to a native of this locality should present no difficulty—the hundred of Walchentone. This still exists in speech in the popular name of Walkhampton—Wackington, and is now represented by the hundred of Roborough. Here we have simply a change of name. This is the second instance in which the modern names follow B; the third is in the omission of Sulfertone.

The chief differences between the ancient and the modern hun-

dreds are to be found in East Devon. Two hundreds whose names appear in A—Clauuueton (with Badentone) and Hertesberie—are not found in B and C, and have not reappeared since. Cadelintone and Axemuda, which are in all three, are likewise gone, with Sulfertone (A and C) and Ofecolum (B and C). Alerige and Hamiohc (also B and C) continue, and West Budleigh has been added.

There is no difficulty in identifying Cadelintone Hundred with the district between the Exe and the Creedy, of which Cadleigh is one of the most important points, and which now contains the hundred of West Budleigh. Hertesberie is not quite so clear, but I believe that it forms part of the hundred of Axminster, and that the river Yarte is represented in the first portion of the name. Clauuueton is manifestly Clayhydon. Starting from these premises we find that at the date of the earliest list (A) the whole of the district east of the Exe and Creedy, and a line running from the head waters of the Creedy north to the Exe and Barle below Dulverton, was comprised within eleven hundreds; namely, those of Cædelintone, Sulfertone, Clistone, Budeleies, See Marie Otrie, Cullinctone, Axamudes, Axaministres, Clauuueton and Badentone, Halsbretona, and Tueruetone. In the latest list (C) that number has, however, increased to thirteen by the addition of Allerige, Hamiohc, and Offecolum, the only loss being Hertesberie. Here, then, we have proof that while at the date of A East Devon was by far the most densely populated district of the county, in the interval between A and C there had been a considerable increase of population. The Saxon was pressing rapidly into the county over the Somerset borders down the valleys of the Exe and Culm; for that is the precise locality where the greatest changes are recorded. As another illustration of the comparative density of population in this district, we note further that of the thirteen hundreds enumerated in C three are the smallest in the county—Axemuda, Offecolum, and Hasbtone; while uneven distribution even in that area is also shown by the fact that Budeleie is the largest. The present boundaries continue still more irregular than in any other part of Devon, and bear all the marks of being directly governed by population.

Of lists B and C, as distinct from A, there are only two hundreds that have not descended to modern times, the hundred of Ofecolum, which now forms part of the hundred of Halberton, and that of Axemuda (Axmouth) now included under Axminster.

Two hundreds of modern days, not found in the ancient lists,

have yet to be dealt with, those of Winkleigh and Tavistock, Winkleigh to all appearance is taken out of the original North Tawton Hundred; and Tavistock Hundred seems as if it originally formed part of Lifton. It must be confessed, however, that it is difficult to account for this fact, if it be one, nor in the Domesday details of C does the Abbot of Tavistock appear under Lifton; while in the other hundreds in which the Abbey had property the name occurs. Is it possible that the descent of the Danes upon Tavistock and Lydford in 997 has any connection with this? But the devastation they caused was recovered long before Domesday, wherein Tavistock appears as one of the most populous places in the county, next after the boroughs.

I do not know that we can carry this immediate point much further. Making every allowance for indicated changes, we can hardly reckon the original hundreds at less than twenty-six, and this would give a Saxon population of the county, when Saxon government was first completely established, of about 15,000.¹

To this I will only add, that in the original limitation of the hundreds natural boundaries seem to have been adopted where available, chiefly river courses. For example, Walkhampton or Roborough Hundred lies between the Tamar and Tavy and the Plym, and the original Plympton Hundred no doubt extended from the Plym to the Erme.

It will be of some service in this inquiry if we turn from the ancient civil divisions of the county to the ancient ecclesiastical—from the hundreds to the deaneries. Now while it is quite true

¹ For the sake of comparison and completeness, I give the hundreds of Cornwall.

A	B	C	Hidage.	Geld. £ s. d.	Modern Names.
Rieltone .	Rieltone .	Rilestona .	69-6 fer.	6 10 6	{ Pyder (except east), and probably N.W. of Powder
Conartone .	Conartone .	Conarditonæ	33	2 19 9	Penwith
Winnetone	Winnentone	Winnentone	36½	1 16 0	Kirrier
Tibesternæ	Tibestei .	Tibestene .	61½-3 fer.	5 11 9	Powder, except N.W.
Fawitone .	Fauuitone .	Fauuitone .	43½	3 9 0	West, south of East
Stratone .	Stratone .	Stratone .	83-3 vir.	8 6 6	{ Stratton, north of East, Lesnewth
Pautone .	Pautone .	Pautone .	44	None.	Trigg, east of Pyder

There were many untaxed hides; St. Petrock (Bodmin) had 30 hides that never gelded; and from the lands of Bristic there was no geld except £17s. 6d. According to the hundreds, the population of Cornwall at the time of the completion of Saxon administration did not exceed 4,000. In Domesday it is enumerated at 5,438.

that the deaneries continue living units of county organization, in a sense which the hundreds have long ceased to fill; and while therefore they have been exposed to more continuous change; there still remains so very remarkable a correspondence between the two as at once to suggest that when the deaneries were first planned the hundreds were taken as a basis, just as in the majority of cases the ancient parish was the child of the manor, or group of manors, belonging to the same proprietor. The hundreds and the deaneries are indeed commonly known by different names; for the ecclesiastical centre of the district was rarely the same as the civil; but still the relationship is distinct; and it is a noteworthy fact that it is best seen in connection with the oldest hundred list than with the newer. Thus the deanery of Tavistock is the old hundred of Lifton—the modern hundreds of Tavistock and Lifton, with a fringe cut off to the north and east—more convenient of access from Okehampton, and joined thereto. Okehampton Deanery takes most of its parishes from Torrington Hundred; and Holsworthy Deanery is wholly formed out of Torrington. Hartland Deanery includes not only the whole of the present Hartland Hundred, but the northern portion of Shebbear, over which the detached portion of which Yarnscombe forms a part gives evidence that Hartland formerly extended. Torrington Deanery in the main represents the ancient Merton Hundred, included in the modern Shebbear. The development of Barnstaple naturally drew from all the adjacent hundreds. Shirwell Deanery comprises all Shirwell Hundred and all Braunton, except Barnstaple, Pilton, and Filleigh, which are taken by Barnstaple. Chumleigh Deanery is chiefly North Tawton Hundred. South Molton, as an important centre, includes parts of its own hundred and that of Witheridge. Cadbury takes all West Budleigh, except Washfield, with adjoining parishes, and probably represents fairly well the lost hundred of Cadelintone, but with the bulk of Crediton Hundred added. Tiverton Deanery swallows three whole hundreds—Tiverton, Bampton, and Halberton—with a little more. The other deaneries in East Devon are, as we might expect from the changes in the hundreds, very much mixed. Thus Dunkeswell includes portions of Hemiock and Axminster Hundreds, and may represent the lost Hertesberie. Honiton is chiefly Axminster, with Axmouth and part of Colyton. Plymtree Deanery is chiefly Hayridge Hundred, and may more nearly represent the ancient Silverton. Aylesbeare

Deanery takes in the hundreds of East Budleigh and Ottery, the bulk of Cliston, and a little of Wonford. Other portions of Wonford are included in Kenn Deanery, which, however, is mainly Exminster. Dunsford Deanery, on the other hand, is mostly Wonford, with a small portion of Exminster. Moreton Deanery closely corresponds with Teinbridge Hundred. Ipplepen Deanery is Haytor Hundred, with the detached Wonford parishes of Coombe- and Stoke- inteignhead, Haccombe, and the Ogwells added. Totnes and Woodleigh Deaneries correspond in the main with the existing hundreds of Stanborough and Coleridge; but the extension westward into the hundred of Ermington seems to indicate a closer correspondence with the former hundred of Dippesforde, more especially as the whole of the rest of the hundred of Ermington is included with the existing hundred of Plympton in the Plympton Deanery. Until recently the deanery of Plympton also comprised the Three Towns and their adjuncts, which now form a rural deanery of their own. The deanery of Tamerton, which represents the hundred of Roborough, no doubt lost Plymouth and its sister communities ages since, in consequence of the proprietorial rights exercised by the Plympton Priory.

Let us now turn to the consideration of Saxon Devon so far as concerns Plymouth and the immediate neighbourhood.

The Chronicles, as I have already said, hardly render any aid. Plymouth is not named in them, but incidentally we have a proof of the insignificance of whatever settlement may have then existed in this vicinity, in the statement of the *Saxon Chronicle*, that in 997 the Danes sailed up the Tamar, assailing Lydford, and burning the minster at Tavistock. Had there been any opportunity for the committal of special ravages on the way it could hardly fail to have been recorded. The only historical fact of the Saxon period immediately connected with this locality, is the record of the defeat of the Danes in 851 at Wicganbeorge. There appears little reason for hesitating to identify this place with Wembury, and the "Viking's earthwork" seems fairly acceptable as a rendering of the name.¹

¹ Okenbury, on the Erme, is suggested by the Rev. F. C. Hingeston-Randolph as possibly the site of this battle, which would not, however, remove it from our district; while Mr. J. B. Davidson has adduced very strong arguments in favour of Wickaborough, in Berry Pomeroy.

The statement of Risdon, that in the life of St. Indractus, Plymouth is named Tamarworth, rests, so far as I know, upon this sole authority. Whether it be so or not, the assertion has little significance. Tamarworth may fairly be interpreted to mean "the island of the Tamar"—island being one of the usual renderings of many-meaning "worth;" and in such a case would by no means imply the existence of a town of that name. Moreover, had there been such a settlement, how are we to account for its total disappearance at the Norman Conquest.

We pass then from the Chronicles to the second source of information I have mentioned—the Charters, and here we do get a gleam or two of light. My friend Mr. Davidson, whose knowledge of Saxon Devon is so extensive, has kindly placed his investigations at my disposal, and it is to him that I am indebted for the few but important facts I have next to lay before you.

Two Saxon documents refer to this district; one relating to the Monastery of Plympton, and the other to an estate in Meavy.

About the year 904 Eadward of Wessex (Eadward the Elder, son of Ælfred the Great) granted to Asser, Bishop of Sherborne, and the community (convent) at that place, three properties; namely, Wellington (Somerset), consisting of six manors, Buckland (West), and Lidiard (Bishop's, though not so called from the Bishop of Sherborne, but from the Bishop of Wells, to whom it afterwards belonged), consisting together of twelve manors, by way of exchange for "the monastery, which in the Saxon tongue is called Plymentun" (Plympton), to be held on either side by the grantee and his successors in perpetuity. Mr. Davidson remarks, "The original of this deed is a paper writing in the British Museum (MS. Cott. Vit. E. v. fo. 124, b.), being a copy made in 1592, by one Francis Thynne, at the house of William Lambard, Esq., the Kentish antiquary. Of the original nothing seems to be now known. Kemble (K.C.D. v. 156) marks the deed (No. 1083) as being of doubtful authenticity. Collinson (ii.) accepts the statement as to the grant of the three estates to Sherborne, as an historical fact, but says nothing about Plympton or the exchange. The editors of the *Mon. Hist. Britannica*, in their preface (p. 78), speak of the grant 'in exchange for Plympton' as an undoubted fact. The existence of a Saxon monastery at Plympton in 904 is neither impossible nor improbable. All that can be said is that

the document upon which alone (so far as the writer knows) the statement rests is of doubtful validity."

The Meavy charter is a deed of undoubted authenticity. For many years it has been exhibited in a case with others in the King's Library, British Museum, and it has been *fac-similed* by the Palæontographical Society. It is printed in Kemble, No. 744 (iv. 35), and is a grant, in 1031, by King Cnut to his faithful minister (thegn), named Ætheric, of half a mansa (hide) of land at Mæwi. No author or writer pointed out the identity of Mæwi with Meavy until Mr. Davidson made the discovery, but there can be no doubt of the fact. The grant by King Cnut is witnessed by Æthelnoth, Archbishop of Canterbury, by Queen Emma-Ælfgiffa, and by Bishops Ælfsig of Winchester, Brihtwolde of Ramsbury, Brihtwig of Wells, Ælmer of Selsea, Lyfing of Crediton, Æthelric of Dorchester (Oxon), and Brihtwine of Sherborne. Four duces or earls also sign, namely, Godwin, Hakun, Sihtric, and Hrani; and several abbots and ministri (thegns). The Saxon boundaries of this "half-hide" correspond with the eastern and northern parts of the Meavy parish. Meavy before the Conquest, as we shall see, consisted of four separate portions, or rather there were four separate Meavies. Of the Meavy which was the subject of Cnut's grant, Ætheric was the holder in 1031; Alward in 1066. At the Conquest all four passed to Judhel of Totnes, and as Mr. Davidson suggests, "It may have been this circumstance which caused them to be grouped into one parish. If Lake Meavy be a pre-Norman name, it is probable that the four Meavies were called Church Meavy, Goda-Meavy (se góda Mæwi, the fertile Meavy), Hoo-Meavy (the high Meavy), and Lake Meavy."

The most remarkable feature about this Meavy charter is the fact, ascertained by Mr. Davidson on the spot, that the boundaries of the estate are still clearly traceable, and that one of the landmarks is such a set of stepping-stones as within the past two or three years was so wantonly damaged at Shaugh Bridge. The ancient name for such a passage across a stream was, it now appears, "cleaca"—the Meavy charter, thanks to Mr. Davidson's investigation, affording both the word and its interpretation. The point is so clearly set forth in a letter from Mr. Davidson which appeared in the *Academy* of July 29th, that I cannot do better than quote it:

The boundaries of Cnut's grant are given, and correspond accurately enough with the northern and north-eastern parts of the present parish of

Meavy. They begin thus: 'Ærest on cleaca'—'first at cleaca' or 'the cleaca.' Being struck with this phrase, I resolved, some weeks since, to visit the actual north-east corner of Meavy parish, where it meets Walkhampton and Sheeps-tor, in order, if possible, to ascertain what a 'cleaca' really means. At the spot I found the object of my search, in the shape of a set of stepping-stones, about twelve in number, formed of rough unhewn granite boulders, the surfaces of which are worn down in the middle by the footsteps of an unknown number of generations. This was undoubtedly the 'cleaca' of the boundary; but search for the word in English dictionaries proved altogether fruitless. At length a friend directed me to Armstrong's *Celtic Dictionary*, where 'clach' is explained as 'a stone, pebble, rock;' and 'clachran' as 'a pier, landing-place, stepping-stones in water or on watery ground;' and to O'Reilly's *Irish-English Dictionary*, where 'clachan' is rendered 'a ford, stepping-stones.' So that the word appears to be a survival, through the Anglo-Saxon or Old-English period, from a former age. It may be added that lower down the stream, at Meavy Bridge, is another 'cleaca' or set of stepping-stones.

Where information is so scanty we are glad to welcome light from any quarter, however faint its rays may be; and before we proceed to examine what after all must be our chief authority for the Saxon period in this part of Devon—Domesday—somewhat may be gleaned from the evidence afforded in place-names and surviving customs, of the conditions of the earlier Saxon settlements.

The names of all the rivers in this district, and of several of the smaller streams, are Keltic; and the fact that they have been handed down proves lengthened intercourse between Kelt and Saxon, and continued intercourse from Keltic times. When we pass from names of rivers and prominent points¹ to words connected with settlement and occupation, we find a complete change. Of the names of local manors as preserved to us in Domesday—and bear in mind that manors were originally merely the homesteads or clearings of the individual or the family—nearly all are Saxon. Either, then, the population in Keltic times was very small, the country comparatively unsettled, or most of the Keltic sites must have been abandoned and their names and memory lost. The latter hypothesis cannot be accepted to the full extent required to explain the disappearance of so many traces of a numerous Keltic race.

We conclude therefore with very little hesitation that it was not until Saxon times that this locality commenced to assume a definitely settled aspect, and that the majority of the *tuns*, *hams*,

¹ On the coast there are traces of Norse influence. *Vide* my "Hist. Con. Dev. Place-Names," *Trans. Devon. Assoc.* x. 276-308, and my "Notes on Local Etymologies," *Trans. Plym. Inst.* vii. 39-49.

leys, *stocks*, and *worthies* are of direct Saxon origin and date. Making the fullest allowance for the substitution of new names for old ones, this district, at the time of the Norman Conquest, must have been far more populous than in Keltic days. And a fact to be specially borne in mind is the great preponderance of names of a peaceful class—the simple enclosure of the “tun” largely predominates, and the more defensible “stocks” are both few and far between. It is probable indeed that the “stocks” represent the earlier settlements, when the need of defence was the greater, and thus afford some clue to the sites where the Saxon first planted himself. The distribution of the places so named somewhat favours this idea, and it may be that Plymstock is the Saxon continuant of the ancient and important pre-historic Keltic settlement on the eastern shores of the Sound, the choice of the site being dictated by its contiguity to the convenient little land-locked harbour of Hooe Lake. Ho or Hooe, meaning a “high place,” cannot have been the original name of the parent village, but must have been transferred to it from the adjoining hill.

I remarked in my last address—“There has not yet been found in Devon any certain trace of the Teutonic mark, which would have survived, if at all, only in modified form by the time the county was absorbed in Wessex.” The “mark,” you will remember, was a distinguishing feature of the elder Teutonic civilization—the name given to the lands of a community, at first held in common, undivided, and used equally. In the later forms of the “mark” the meadow and arable land were divided into equal shares, with a shifting from year to year of the portion occupied by each member. In many parts of England lands are still held under this joint and shifting ownership; but Devonshire, when I addressed you last year, had yielded no clear evidence. Singularly enough proof has since come to light of the existence of the “mark” not merely in Devon, but within the precincts of Plymouth itself. In looking through a large number of deeds relating to property within the borough, I found several references to the sale or lease of portions of land under the name of “landscore.” The word at first attracted little attention, for it evidently meant a piece of land “scored” or divided off.¹

¹ Elsewhere it appears as “landshore,” the root idea of the “shore” being the same as that of “shire.”

When, however, I came across the copy of a deed reciting that a certain field was "lyinge in landscore," and elsewhere reference to "landscore land," the matter assumed a very different aspect; and I cannot doubt that we have here a distinct and unmistakeable vestige of the tenure of the "mark." The field in question was that known as Thistle Park, which retained a very mixed and complicated ownership until the present day. Mr. J. Brooking Rowe also informs me that a large quantity of land about Elburton is or has been held in undivided portions. This has probably the same origin; and when we find not only the existence of a well-recognized division of land under such a title as that of "landscore," but the use of the term to signify a peculiar kind of holding, we may be satisfied that the parentage of such a peculiar custom is to be found in the old Teutonic "mark." If so, we have reason for the further inference that this part of Devon was the scene of active Saxon colonization from the sea long before the county could have passed into Saxon hands.

Let us now see what is to be gleaned from *Domesday Book* concerning this corner of the county. No nation in the world possesses an historical document of such antiquity and value as Norman William's great Survey of England, which excited so sorely the wrath of his Saxon subjects; and yet, familiar as its references are, and easy of access as it has been made by its phot zincographed reproduction, there is no record which has been used to so little general purpose. Here and there for special neighbourhoods, or for a special end, it has been dealt with more or less exhaustively; but the historian has yet to come who will grasp its lessons as a whole, and set fully before us the invaluable story it has to tell of the mighty changes that fell upon the English people as the result of the battle of Senlac.

I need hardly explain the nature of the Domesday Survey. Made by order of the Conqueror, in the year 1086, when he had sat upon the English throne just twenty years, it set forth, to use the terse and indignant language of the writer of this portion of the *Saxon Chronicle*, "what or how much each man had who was a holder of land in England, in land or in cattle, and how much money it might be worth. So very narrowly he caused it to be traced out, that there was not one single hide, nor one yard of land, nor even—it is a shame to tell, though it seemed to him no shame to do—

an ox, nor a cow, nor a swine was left that was not set down in his writ." This miraculous perfection of detail, attributed to the Survey by the Saxon scribe, was hardly reached, but the work would be a marvel of accuracy and completeness for any age. The full record is contained in two volumes, is called the Exchequer Domesday, and deals with the whole of England except the four Northern Counties. This is really a revised summary of the original returns; and further details are contained in the more fragmentary records of the Survey called the Exon Domesday, which belongs to the Chapter Library at Exeter, and in the Inquisition of Ely. It is in the Exeter Domesday that the returns of the stock for the Western Counties are to be found; and I purpose to lay both records under contribution.

There is at times much difficulty in identifying the particular estates recorded. Concerning a large proportion of the manors no doubt can exist; but when the old names have been lost, or so mutilated in the course of centuries as to be past recognition, or where there are several manors with the same general name, the task of identification is never easy, and oftentimes hopeless. Occasionally indeed some clue is afforded by the conditions of ownership, the order of occurrence, or by special features which limit the applicability of a description—the existence of a salt-work, for example, or a fishery; and I have found such hints very valuable in tracing some of our local manors, nearly the whole of which we may assign with absolute certainty. Some surprise may be felt at the insignificance of a large proportion of the Domesday estates. Bear in mind, however, that the manor was in its origin merely a farm place—a clearing or enclosure amidst the woods and moorlands, and that every estate was deemed either a manor or an appendant to a manor, and the fact will cease to astonish.

To set forth more clearly than mere description would allow, the general results of my local Domesday analysis, I have prepared a slight sketch-map of the district as it appeared in the reign of the Conqueror, with the names of the manors from the Exchequer Book. In an appendix will also be found details of the various entries, with others of special interest alphabetically arranged; the Exchequer text being supplemented by the additional particulars and variations, if any, of the Exeter. The modern names are also given, and doubtful identifications duly marked. Tables bring

into one view the differing conditions of ownership and occupation, and the various characteristics and values.¹

We all know that the ancient name of Plymouth was Sutton ; but when we turn for it to Domesday we are met by one great difficulty in the fact that two Devonshire Suttons are there recorded—Sudtone, held by the Conqueror in succession to the Confessor ; and Svtone, held by the king's servant, William Hostiarius, and rented of him by one Richard. The former undoubtedly was a

¹ I do not attempt to assign any definite value to the hide and its divisions. Originally, no doubt, it meant as much land as would maintain a household ; thence as much as would take a plough team to manage, and afford the team maintenance. It thus became the Saxon term for "plough land," as carucate was the Norman, and part of the work of the Survey was to reduce the old standard to the new. Arable land only was taxed to the hidage or Danegeld, and as the breadth of arable extended, while the tax on each estate remained in effect a fixed quantity, the disproportion between the hide, which had become a nominal unit of taxation, and the carucate, an actual agricultural factor, is easily explained. The virgate was a fourth of the hide, and the ferding or ferling a fourth of the virgate. Estimates of the area of the hide vary from 120 acres and even more down to 40 acres ; and I do not desire to offer an opinion. All that appears certain is that it was originally a "plough land ;" and that by the Norman Conquest it had ceased in the present relation to have more than a fiscal bearing—a fact which seems strangely to have been overlooked. The local entries clearly show this ; for while in one case a ferling contains $1\frac{1}{2}$ carucates, or equivalent to 24 to the hide, and in another a virgate has 10, equivalent to 40, there are cases in which the hide is only stated as equal to two. Where the discrepancy is the greatest, there, as a rule, since the imposition of the hidage geld, the greatest improvements had been made. The acre, mile, and furlong may be regarded as decidedly greater than our measures ; and they seem to have been used somewhat roughly, as their only purpose was to estimate non-taxable properties. The total figures given for the various manors fall, as a rule, very far short of the full extent ; for nothing was noted that did not have an actual appropriated value, either as arable, pasture (natural pasture, as of any moorland), meadow (and there are indications that this applied chiefly to strath land, by the streams), and wood or coppice. Commonly about a fourth only of the actual area is thus accounted for ; but in this locality some of the smaller manors are much more closely estimated. Of the occupiers under the lords or their tenants, the serfs were the lowest, absolute slaves at the will of the lord ; the villeins appertained rather to the land, but had certain privileges and rights in return for their service ; and the bordars were cottagers—opinions differ as to whether they were more free than the villeins, or intermediate between them and the serfs. Probably they, in part at least, cultivated small patches of ground, and paid a rent in kind, and they may also have been, as Mr. Round suggests, labourers on the lord's demesne.

Plymouth Sutton ; for it is expressly stated to have been appendant, with Macretone (Maker) and Tanbretone (Kings Tamerton), to the manor of Wachetone, or Walkhampton. Was the other Sutton here also? At first sight this would seem probable ; for in after years we read of the manors of Sutton Prior, and of Sutton Vawter, or Valletort, as well as of the tything of Sutton Raf, which, with part of the tything of Compton, were constituted in 1439-40 the incorporated borough of Plymouth. Enquiry at once throws doubt on the hypothesis. It is true that Leland, speaking of the Priory of Plympton, states that "the chirch, and much of the ground whereon Sutton, now caulled Plymmouth, was builded, was longing to one of the Prebendes titulo S. Petri and Pauli of Plympton, a collegiate chirch . . . before the Conquest;" whence the natural inference would be, that here was the origin of Sutton Prior.¹ Domesday, however, is utterly silent about any such holding of the Saxon college in Sutton. We do not know Leland's authority ; but monkish legends are not always to be trusted, and monkish forgeries of title-deeds are not unknown. The division of the original Sutton into Sutton Prior and Sutton Vawter is to be explained much more easily. Henry I. gave the manor of Sutton, with those of Maker and Kings Tamerton, to Reginald of Valletort, and the Valletorts were very liberal benefactors to the Priory. Copies of some of their grants are preserved—of the island of St. Nicholas, of a site to erect a milldam and mills at Millbay, of rights of fishery. It is not until long after the Valletorts held Sutton that we hear anything of Sutton Prior, and then it appears rather as a town and burgh than a manor, though the Prior certainly exercised manorial rights. In the *Nomina Villarum* (7th Edward II., 1314), for example, "John de Dalecurta" (Valletort) is said to own "Sutton Rauff" and the Prior of Plympton "Burgus de Sutton," and in an enquiry made by the Sheriff of Devon, four years later (1318), there is record of the existence of a fishing village and a place for the sale of fish, before the foundation of the ville of Sutton, ere the manor passed out of the king's hands ; while "John de Vautort of Modeton" (Moditonham), and "John de Vautort of Clyst," with the Prior of Plympton, declare that the Prior is lord of two parts of the town, and they of the other third. The history and causes of the division of the manor seem therefore clear. But if

¹ This was the view I formerly inclined to accept, though doubtfully. (Vide *Hist. Plym.* pp. 16, 18.)

this evidence is not deemed conclusive, there is yet another argument. The King's Sutton of Domesday is described as having land for six ploughs. It occupies therefore the fullest limits we can fairly assign to the original Plymouth manor. The enumerated population is just over half-a-dozen—one serf, four villeins, and two bordars. There were upon it fifteen sheep, and it paid twenty shillings a year by weight.¹

Next in age of the Three Towns comes Stonehouse. Here there is no uncertainty. Stanehus—the name is evidently derived from its peculiar and proud possession of a building of “stane and lime”—which had belonged in the days of King Eadward to Alwin the Saxon, was held by Robert the Bastard. There was only land for one plough, and it was occupied by one villein, who paid five shillings annually. Robert had also two villeins in the land of St. Peter of Plympton, which Alwin had held, and these paid another five shillings. If any part of Plymouth land belonged to the Priory before the Conquest, it would in all likelihood be this; but there is not the slightest evidence in support of the suggestion. Indeed the evidence is all the other way.

There are many Stokes or Stoches in the Devon Domesday; but there is no difficulty in identifying Stoke Damerel, which still bears as a distinctive title the name of its Norman lord—Robert of *Albemarle*. It was a somewhat important centre, and had been much improved since the time of Brismar, who held it under the Confessor, the value having increased from forty shillings to seventy. It had land for twelve ploughs, a population of five serfs, sixteen villeins, and four bordars, and was the most important manor of the whole immediate district. If, as I have hinted, we may regard the “stocks” as the earlier Saxon settlements, this may be the place whence Sutton took its name of South-town, and Weston that of West-town, if the cause in each case was identical; but I speak very doubtfully, and really despair of being able to give a satisfactory solution of this problem. It may be, as I have elsewhere suggested, that the Old Town of Sutton Vawter, which undoubtedly preceded Sutton Prior, had an existence and a name earlier even than Domesday; but no continuing town or site seems capable of answering our requirements.

¹ The other Sutton, if association may be trusted, was somewhere on or near the shores of Torbay.

Weston, now Weston Peverel, is the next manor to Stoches. Before the Conquest it belonged to Ulnod, his sole possession in this locality. Under the Conqueror it passed to the famous Judhel of Totnes, the largest Norman landowner in the district; and at the date of Domesday it formed one of a group of manors within what is now the suburban ring of the Three Towns, rented by one Odo, but which had nearly all formed separate holdings. We have also Bureton (Burrington) which had belonged to Alwin; Manadon to Colbert; Witelie (East Whitley) to Godwin; two Modlei¹ (Higher and Lower Mutley) belonging respectively to Godwin and Alwin; Colridge (Coldridge), owned by Edmer; and Leuricestone, by Saulf, all in the lordship of Judhel and all let by him to Odo—an extensive estate, lying well-nigh, in modern parlance, in a ring fence.

These are all familiar names, with one exception—that of Leuricestone. As a rule the entries of Judhel's manors, even more so than those of other local lords, run in fairly consecutive topographical order. His first manor in this immediate locality is Egg Buckland; then come the Mutleys; then Leuricestone; and then Weston. There can be no doubt therefore that Leuricestone belongs to our suburban belt, and little doubt that it is one of the two Lipsons, though that name is certainly more clearly identifiable in Lisistone, the other form in which it appears. I confess, however, that I have hesitated whether Leuricestone did not after all comprise in part the Cattedown district. It really seems compounded of the old names of the estuary and of that rocky hill—Lary and Hingstone. Curiously enough, too, evidence has recently come to light of the existence of a hitherto unrecorded manor, lying between the Suttons and the accepted Lipson, down so late as the middle of the seventeenth century; and there is a quaint echo of the ancient Leuricestone in the later Lulyetts Fee. We may therefore, almost with absolute certainty, regard Lipson and Leuricestone as adjoining estates, the latter ranging to the west of the former.²

¹ This origin of Mutley conclusively disposes of the idea that the name had anything to do with the Maudlyn House, as formerly suggested, and as accepted by me.

² I question whether there are half a dozen persons who are aware of the existence within the precincts of the borough of Plymouth of this manor of Lulyetts or Uletts Fee. So far as I know, it is mentioned only in a seventeenth century manor court-book, which has somehow found its way among the muniments of the Plymouth Corporation, but which has nothing to do

This group of manors calls for little further remark. Some change had taken place in them under the Norman occupation; for Weston had advanced in value from ten shillings to thirty; Witelie from two shillings to seven and sixpence; Colrige, formerly waste, had become worth fifteen pence. The only falling off was in Manadon, from twenty shillings to twelve and sixpence.

Bocheland, which we identify with Egg Buckland, partly by the order in which it occurs, and which had been held by Heche, was retained by Judhel in his own hands. It had a population even greater than that of Stoke Damerel—ten serfs, ten villeins, and eight bordars. But the most interesting fact to us is that it possessed a salt-work—a place on the borders of the Laira estuary, with any corporate property. This book records the proceedings of the courts leet and courts baron of John Giffard and Alice Giffard, his widow, for the manor of “Uletts fee als Lulytts Sparke als Lulettys fee,” with a parcell of the manor of Lypston or Lipson. The first court recorded was held 16th July, 1st James I. (1603), and the last 13th Charles I. (1638). Though the two manors are linked together, and occasionally called “Ulett cum Lypson,” yet the entries of each are kept so far distinct that we can fairly ascertain what the general extent of Uletts Fee was. It certainly reached from Bilbury Street to North-hill, and so far east by Briton-side as the Whitefriars. The Headlands, otherwise described as “a close by the Maudlyn,” was part of the manor; so was Hampton Shute or Close (als Gilwell parke), on part of which Charles Church stands; and so was a certain unnamed close in the occupation of Thomazine Gibbons, which we may identify with Gibbons Fields, and which, as the rent paid to the lord seems to have averaged 3s. 6d. an acre, may be taken as about four acres in extent. No doubt the manor by the date of these courts had been to a certain extent dismembered; for besides Bilbury Street and East Cross Street there is mention of a tenement in Looe Street, and it is probable therefore that its southern boundary extended at least thus far. Moreover the first list of free tenants, under the year 1603, reaches a total of thirty-six, all but three of whom are entered as heirs of former tenants, while in subsequent years the free tenants do not muster a fourth of that number. In the same year there are recorded six conventional and customary tenants for Uletts Fee, and six conventional tenants for Lipson, the gross rental being £5 10s. 5d. A full list of rentals for the year 1619 shows, however, much better results. In that year the rents payable by the free tenants were £1 0s. 9d. yearly, with 1s. payable at Michaelmas; and the conventional tenants paid £22 5s. 8d. The greater portion of this came from Lipson, the property wherein extended over 167½ acres. Of this one John Collyngs held 100 acres, and had to pay in addition to his rent two capons or two shillings yearly at Christmas, while he had abated yearly at Michaelmas 13s. 4d., for the high rent of Plympton Grange. Richard Derry and Austyn Eliot, two other of the Lipson tenants, had to render a capon each yearly, or 18d.

where salt was made by evaporating the sea water—and this was worth two shillings a year. Though the value of the manor was less than that of Stoke, and remained at fifty shillings, it must have had exceptional importance as the occasional residence of its powerful lord.

Contone (Compton) also belonged to Judhel, and was likewise in its way a notable centre. It had been held by Osulf, but was now rented by Stephen, and worth thirty shillings. The population was just double that of Sutton.

It is possible that in the dispossessed Saxon thane Osulf we have the under tenant of Wide (Widely) and Witelie (West Whitleigh). These two estates had been held in the time of the Confessor, with Hanechelole (Honicknowle) and Tori (Tor), by Wadelo the freeman, but had passed to Robert of Albemarle. Hanechelole and Tori had become the manors of the Count of Moreton, the brother of the Conqueror, and were, with many other estates of that great lord paramount, held by Reginald of Valletort, ancestor of the most famous Norman family of the West of the second generation.

So much for our more immediate suburban area.

Following up the Tamar, we come to Tanbretone (Kings Tamerton), already mentioned as being in the King's demesne.

Buchside (St. Bude), one of several manors held by the chief thane of the district, the Saxon Alwin, had passed into the hands of Alured the Briton. He likewise held the adjoining estate of Tamerton (Tamerton Foliott), which had enormously improved in value since the days of the dispossessed Inewar, from sixty shillings to a hundred. It had the very large enumerated population of twenty-nine, and a salt-work returning five shillings.

Inewar had also held the adjacent manor of Blachestane (Blackstone), which likewise passed to Alured, and had been by him improved in value from twenty shillings to fifty. Next in the list of Alured's possessions comes Tawi, held by Siward in the time of Eadward. There is no place-name extant that corresponds with this, but it is evidently taken from the river, the Tavy, and perhaps extended along its eastern bank towards Buckland Monachorum.¹ Here too we have a large population—twenty-one in all, and an increase of value from twenty shillings to sixty.

¹ Mr. Davidson suggests Peter Tavy.

This Alured the Briton is so called to distinguish him from another Alured, the Spaniard. He was by no means so fortunate with all his manors as he was with those bordering the Tavy ; for several elsewhere show a decrease of value. In this district, however, he was certainly, if we may judge by results, the leading agriculturist of his day, or else the hardest taskmaster. Perhaps both descriptions will apply.

There is only one manor west of the Tavy to which I need call attention, but that is an important one—Birland or Beer—held by Ordulf in the days of the Confessor, but in Norman times by Reginald of Valletort, under the Earl of Moreton. It is one of the most extensive manors noted in the district, having land for fifteen ploughs, and a population of twenty-nine, including three swineherds, who rendered fifteen swine yearly, and seven salt-works, rendering ten shillings. The value here, as in the other Tavy manors, had gone up—from sixty shillings to a hundred.

There is another manor named Tamarlande, which apparently adjoined Birland on the west, and continued the river frontage. The common termination “land” at least suggests association. It seems in some cases to have been specially used of a peninsular area—a tract mainly bounded or enclosed by the sea or by a river ; and thus to be somewhat analogous to (? representing) the Keltic *lan* = “an enclosure.”

Tracing now the course of the Plym northwards, along its western bank, adjoining Leuricestone we have the easily-identifiable Lisis-tone (Lipson). This had belonged to Godwin ; but it had come into the possession of the powerful Count of Moreton, and, therefore, almost as a matter of course, was held by Reginald of Valletort, the most important “tenant” in this locality. Then, as since, Lisistone was a place of small importance ; still it had an enumerated population of eight against the three of Leuricestone. Next to Lisistone comes Elforde—the modern Efford—a manor held by Robert the Bastard in demesne, which had belonged to Alwin. It was an estate of fair dimensions, but the chief points in connection with it are that it had increased in value from ten to twenty shillings, and that it had a fishery worth twelve pence a year. Probably this was in the Plym. In later times there was a fishery of some value in what was called Dee myl, or Demyll, poole ; but no mill is

recorded in Domesday as having existed, either here or elsewhere, in this neighbourhood—a singular fact. Passing over Egg Buckland, as already mentioned, we have the manor of Torneberie (Thornbury), held by Alured under the Count of Moreton, and previously the land of Alcherl.

The three extensive manors of Bickleigh, Buckland Monachorum, and Sampford Spiney (Bichelie, Bocheland, and Sanford), were to a large extent coincident with the present parishes of that name, and, like Stoke Damerel, had owned Brismar for their Saxon lord. They passed together to William of Pollei. He retained the two former in his own hands, and the third was held under him by Robert. All three had so largely increased in value (in each case the value had doubled) so as to suggest here also either that Brismar was a very stupid or a very easy-going sort of landowner, or William a very clever or a very hard one. William kept them well stocked. Bickleigh had no less than 146 sheep, beside fourteen goats; and its fishery in the Plym was worth five shillings a year, against a total annual value of forty. Buckland was even more important. It had the largest enumerated population of any manor in the district—twelve serfs, twenty-four villeins, and ten bordars, and it possessed both a salt-work and a fishery (in the Tavy) worth ten shillings a year. The stock comprised twenty beasts, forty swine, and 130 sheep, and it was worth 100 shillings annually. Sampford, then as now, was a place of comparatively little importance.

I have said that these three manors probably corresponded very nearly with the modern parishes; but there were some other manors of minor importance within their area. Possibly we shall not err in identifying the Bichecome of Robert of Albemarle with Bickham, and the Cumbe, held by Reginald under the Count of Moreton, with one of the local Combes, though it seems almost hopeless as a general rule to attempt to connect the Combes and Lees, and other frequently occurring titles of the Survey, with places bearing such names now.

Next to Sanford comes Wicerce (Whitchurch), the only place in the district under review giving indication in its name of Christian surroundings. It had been the property of Sawin, but had passed to Ruald Adobed, the owner of Tamarlande, and, as the fact of the existence of a church would almost necessarily indicate, was populous—the inhabitants mustering 43 all told. Tavistock was

the chief centre of population in this part of Devon, and all its surroundings were populous in like manner. There seems ground therefore to suppose that Tavistock held or had held somewhat of the position, next to Lydford, of a provincial capital. Lydford was, however, the chief town of south-west Devon, as Totnes was of the south-east, Barnstaple of the north, and Exeter of the centre; an arrangement, by the way, that could hardly be accidental.

This brings us to the head manor of the ancient hundred—Wachetone, or Walkhampton—a place noteworthy only for being part of the royal demesne. Most of the lands hence between Dartmoor and the Meavy or Plym, downwards to Plympton, were owned by the omnivorous Judhel of Totnes.

There were no fewer than four manors bearing the name of Mewi (Meavy), each of which in Saxon times had been owned by a separate thane or franklin—Alward, Alwin, Edward, and Osulf, but all of which were now the property of Judhel. Two were rented from him by Turgis, who was likewise the tenant of Judhel's lands in Shaugh. Two of the Meavy manors were of course Good-a-Meavy (= the Fertile Meavy; or, if a Keltic derivation is taken, Coed-y-Meavy, the Wooded Meavy), and Hoo Meavy (= High Meavy), and these I take it were the two held by Turgis, as adjoining Shaugh. The larger of the others was the manor granted by Cnut, at the further extremity of the parish; but I am not sure that the fourth was within the present limits of Meavy parish at all, or whether it may not be the modern Sheepstor (anciently Schitestor). There is no name in Domesday which definitely represents this in any form; and Judhel, who owned most of the lands in this neighbourhood, has no Tor that can be identified with it. Sheepstor may, however, have been simply part of the Dartmoor waste, and therefore unappropriated in the Survey. On the other hand, we may find it under the name of Metwi, a manor which had belonged to Alwin, but had become the property of Robert the Bastard, and which seems to have been somewhere in this locality. Its breadth of pasture and wood give it all the characteristics of an ancient upland farm. There are perhaps more grounds for associating with Meavy parish the Coltrestan of Judhel, held by Turgis, and identifying it with the manor of Callisham. The corruption is not greater than is frequently found where no doubt can exist. Moreover, all the other manors held by

Turgis under Judhel adjoined each other, in this very neighbourhood. Still the remaining lands of its Saxon owner Aluric lay between the Plym and the Yealm, and Calstone in Holbeton has a name more nearly akin. The order of succession in Domesday does not help us here; for Coltrestan occurs after Langdon and before Fernhill, and thus may belong to either group. But it was certainly within our district.

The manors of Scage, or Shaugh—for there were two, corresponding to Higher and Nether Shaugh—in the days of the Confessor were the property of Alebric, who owned an extensive tract of land on the borders of the moor in this vicinity, and had Judhel for his successor. To him belonged also Fernehelle (Fernhill); Pidehel (Pithill); Torix, which adjoined the head waters of the Torry brook; Lochetore (Loughtor) on the same stream near Newnham; Odeford (the lower of the two Woodfords near Marsh Mills); Hoveland (Holland); Lege (Lee); and Waliforde (Collaford). Alebric's estates must therefore have stretched very nearly from the Plym to the Yealm. The northern portion generally fell to Turgis as under tenant, the southern to Ralph.

Two other manors on the eastern side of the Plym have yet to be mentioned. These are Brictricestone, now represented by Brixton in Shaugh parish, which had passed from Elmer to Judhel, and was held by Ralph, and the second of the two Odefords—Higher Woodford—which had likewise belonged to Elmer, and had passed to Judhel and Ralph in common with its neighbour. There was evidently a very strong and natural desire on the part both of lords and tenants to make their holdings as compact as possible.

Cornehode (Cornwood) and other manors in that locality had fallen to the Earl of Moreton; and this, like Harford and Beer Ferrers, was in the hands of Reginald of Valletort as under tenant. Cotelie, which I identify with Cadleigh, and which with Cornwood had belonged to the Saxon thane Edmar, was, like its neighbour, fairly populous. The two Bachemores (Baccamoore) were held by Ralph under Judhel.

There is no need to quote the old "furzy-down" rhyme to prove that Plympton is older than Plymouth. Under the name of Plintona it appears in Domesday as the chief centre of the immediate district, and the most valuable manor. It had land in all for twenty-six ploughs, besides woods half a mile in breadth,

and stretching a mile in length. Twenty plough lands were in the hands of the king, and rendered him £13 10s. annually; six plough lands were held by the canons of St. Peter. Six serfs, fifteen villeins, and twelve bordars, dwelt on the royal domains; twelve villeins on those of the canons. The total enumerated population was thus forty-five, besides the canons and other free-men. By the side of such a community as this, little Sutton was nowhere.

The next entry to that of Plintone is Elintone, and the record is that of a manor of almost equal importance. But we have no Elintone in this neighbourhood; and no satisfactory proof of its identity has hitherto be found. The most feasible hypothesis suggested was that the E had been written by mistake for P; and that we have here another Plympton—as we now have Plympton St. Mary and Plympton Erle. But against this we have to set the fact that the blunder, if it be one, is found in both the Exchequer and Exon books, and that they agree also with regard to Plymstock as well as Plympton. And there is a fatal objection in the further fact that if we add Elintone to Plintone, and take also the other manors included within the limits of the Plymptons now, we shall get an acreage far in excess of the area.

I can at best offer a suggestion—may not Yealmpton be intended? It is the adjoining parish to Plympton; its area would fairly accord with the figures given; and what is perhaps quite as much to the purpose, under its present name, or one more nearly approaching to it than Elintone, Yealmpton does not appear in Domesday at all. We may be sure it is somewhere; and the difficulty with regard to the name is more in appearance than reality. “N” is used for “m” in Plintone as it would be on my theory in Elintone; and “e”—with or without the aspirate, or “a” with it—are constantly employed for “y.” When Yarnescombe appears as Hernescoma, and Yartecombe as Erticoma, Yealmpton may easily be read as Elinton or Elintona. Besides, in one instance the Exon Domesday gives Alentona, which is not easily convertible into anything else than Yealmpton. The point is noteworthy; for if this identification is correct Yealmpton 800 years since had an importance second only to Plympton itself. Elintone had land for twenty ploughs, and a recorded population of forty-four; while the portion held by the king returned £12 10s. yearly by weight. It is important also

from another fact, that part of the manor of Elintone was held by the clergy of the ville in alms. The canons of Plintone, and the clergy of Elintone, are the only "religious" recorded in the immediate Plymouth district.¹

I do not wish to ignore any difficulties. The Exon Domesday speaks of the clergy of Elintone as of St. Mary of Alentona; and the existing church of Yealmpton is dedicated to St. Bartholomew, while the dedication of Plympton St. Mary is patent. But a change of dedication is no unusual thing, and we know that Plympton St. Mary does not date as a dedication further back than the beginning of the 14th century.

On the other hand, the situation of Yealmpton is precisely that which all the leading early settlements and religious stations—if I may use a modern phrase—of this part of the county occupied before the Norman Conquest. Take St. Germans, at the head of the Lynher; Tavistock, on the head waters of the Tavy; Plympton, at the "head of the lake" (Pen-lin) which we now call the Laira; Yealmpton, at the head of the tidal waters of the Yale, or Hayle.²

I do not care to lay much stress upon traditions unless their natural origin and purity of transmission can be clearly shown; but we need not ignore the further fact that Yealmpton is reputedly a place of note in Saxon days, and it certainly derives additional importance from the presence of the ancient inscribed stone in its churchyard, which fairly indicates ecclesiastical influence in very early times.

The immediate vicinity was one of considerable prominence; and without attempting to trace all the manors immediately contiguous to the east bank of the Yealm, particular mention should be made of one or two. First we have Niwetone (Newton Ferrars), which Edmar held in the days of King Eadward, and which became one of the estates held by Reginald of Valletort under the Earl of

¹ In the taxation of Pope Nicholas (1288-91) the name is Yalmpton and Yalampton.

² I have elsewhere given reasons for believing Hayle the original form of the name of the river which is now called the Yealm, a word in its present shape inexplicable in either Keltic or Saxon. Hayle is simply Kornu for river; and hayle-ham-ton = the enclosure of the dwelling by the Hayle—the Domesday "*Al-en-tona*" as nearly as one could wish. The "p" is not original either in Plympton or Yealmpton, and both words appear without it down to comparatively recent times.

Moreton. A modern settlement by comparison with its neighbours, it had a recorded inhabitancy of thirty-three, notwithstanding its value had fallen off (and therefore presumably its population also) from six pounds to seventy shillings, the result possibly of the ravages of northern pirates.

Memidlande (Membland) and Lambsete (Lambside) were part of the possessions of Judhel. Hard by is Calstone, which I have suggested as an alternative identification with Callisham of Coltrestan.

Revelstoke does not appear under that name, and I am unable to satisfy myself that it can be identified with any of the Stokes. Can Nattom or Netton be the manor of Notone? which belonged to the Abbey of Buckfastleigh, and which had an enumerated population of twenty-seven.

The district between the Yealm and the Plym presents hardly any difficulty, but the diminutive character of some of the manors will surprise those who have not learnt how very unimportant in their origin a great proportion of the feudal divisions were. By far the larger number belonged to Judhel. Brixton appears as two manors, a distinction which has continued to the present day, under the name of Brisestone. Both were held under Judhel by William, who also held the adjacent manors of Chichelesberie, Sherford, Ulueveton, Hagwile, Stotescome, Stotdone, and Done. There is no Wembury, but its area is fairly covered by the two Langedone manors, held of Judhel by Waldin. Ho, the last of Judhel's manors in this locality, was tenanted by Stephen, probably the same who held Compton.

With two exceptions the other manors between the lower waters of the Plym and the Yealm had passed to the Earl of Moreton—Harestane (both Higher and Lower), Spredelestone, and Wederige; and these were all tenanted by Reginald. William of Poillei had Gosewelle, and the Abbey of Tavistock Plemestoch; the latter fact showing how utterly baseless is the tradition of "Childe the Hunter," of his death in the snow on Dartmoor, of the will written in his blood

"He that finds and brings me to my tomb
My lands at Plymstock shall be his doom,"

and finally, of the "guile" by which the monks of Tavistock secured the prize.

Four manors only west of the Tamar come within our purview. At the time of the Survey what is now the parish of Maker was divided into two manors of Macretone, one the demesne of the King, with land for ten ploughs; and the other belonging to the Count of Moreton, with land for eight, and held under him by Reginald of Valletort. One of these two manors is in the Devon Survey, and the other in the Cornwall, and they may be taken as corresponding to what, until recent years, was the division of the parish between the two counties. Rame and Antone, both fairly-populous manors, were held by Ermenhald under the Abbey of Tavistock; and it is curious to note that the Abbot of Horton gave the land of Antony a bad name.

The area comprised in the district which we have been considering, and shown in the map, is about 250 square miles, of which, after allowing for water, and for the included parts of Cornwall, something over 200 square miles may be considered to belong to the land surface of Devon. The manors identified as occupying this area are eighty-one in number. Whilst therefore the district itself is just a twelfth the size of Devon (2585 square miles), the manors are one-fourteenth of the total number, which is 1118. The population of the manors enumerated is 812, and as the total population of the county set forth in Domesday, as calculated by Sir H. Ellis, is 17,434,¹ it follows that the average population of

¹ In Devon the villeins formed nearly half the population—8070, the bordars being 4847, and the serfs 3294. In Cornwall a very different state of social relations is indicated, by the bordars mustering 2355, against 1730 villeins, and 1160 serfs. May not this have resulted from the mixed Saxon and Keltic population of the latter county?

I have been careful to speak of the “enumerated” or “recorded” population, and so to guard against the inference that Domesday contains complete census returns. The free classes must be added to the figures given, and we have very little clue as to the proportion they bore. The burgesses in the towns too, who held rather a personal than a class relation to their lords, must in many cases have been heads of families; and so with certain others of the enumerated whose individual position is clearly defined by the character of their occupations. But so far as regards the three great unfree divisions—serfs, villeins, and bordars or cottars—I hold the returns to be generally inclusive, and to cover all who came under these heads, old and young. They were all more or less the property of the lord, or appendant to the soil; and the rigid scrutiny that cast up with all the accuracy attainable every sheep, or goat, or pig, would not have omitted knowingly a single member of the

the local manors is some 50 per cent. less than those of the county generally. In accepting this conclusion it must be borne in mind, however, that this corner of the county included none of the chief centres of population, such as Exeter, Totnes, Barnstaple, and Lydford. Allowing for this, we shall find that the average of the more rural districts is fairly represented here.

Included within our area we have nearly all the hundreds of Roborough and Plympton, with portions of the hundreds of Ermington and of East: comprising the parishes, in whole or in part, of old St. Andrew and Charles (Plymouth), Stoke Damerel, Stonehouse, St. Bude, Tamerton, Beer, Egg Buckland, Bickleigh, Buckland Monachorum, Whitchurch, Sampford Spiney, Walkhampton, Sheeps-
tor, Meavy, Shaugh, Plympton Mary, Plympton Erle, Cornwood, Yealmp-ton, Newton Ferrers, Holbeton, Revelstoke, Wembury, Brixton, Plymstock, Rame, Maker, and Antony. Without assuming absolute accuracy, it seems probable that the population of Roborough Hundred was greater than that of Plympton, but that it did not much, if at all, exceed the 500 or 600 which we have regarded as the original hundred population unit. It is impossible to speak with precision on this point, still in all likelihood the population of Plympton Hundred was at least fifty less. We can reckon exactly the population of the eight manors which now constitute the Three Towns—Svdtone, Leuricestone, Lisistone, Contone, the two Modleis, Stanehvs, and Stoches—and we find it 61. This makes a poor figure against the enumerated population of the chief centre in south-west Devon—Tavistock, which had a stated population, in addition to monks and five tenants under the abbey, of 79. Lydford, with its 28 burgesses within the walls and 41 without, had clearly been distanced by the “stock” of the Tavy. For twenty miles, however, in every direction St. Germans was the most important settlement; for it had 92 dwellers, exclusive of the canons. Since Domesday the population of the immediate Three Towns’ area has increased at the very least 2000 times.

serf, or villein, or bordar classes. For all practical purposes, therefore, so far as the Plymouth district is concerned, the figures of the unfree population may be accepted as substantially accurate. They agree closely, moreover, with the hundreds estimate; and I do not believe that the addition of the free folk would increase our total more than 25 per cent. Had there been any burgh within the area, of course a much larger addition must have been made.

From the Hundred enumeration we gather that the number of hides in the county was 927½. The average taxable area of each manor was therefore something less than six-sevenths of a hide. This is rather above the average of the manors within the district under review, which cannot well be put at more than five-sevenths. Still, the difference is not important. The plough lands made a total of 368½, so that there were six times as many actual carucates as nominal hides.

It is not possible to give more than approximate estimates of the extent of meadow, wood, and pasture, in consequence of the doubt that exists as to the value of the old mile and acre. Bringing them as nearly as may be to the present standards, we find, however, that the district did not contain less than twenty square miles of pasture, with quite as much of wood and coppice. The meadow land can be given exactly at 189½ acres. If we estimate the carucate at the 100 to 120 acres which is commonly assigned to the hide as a ploughland—the arable to be worked and the meadow and pasture for the maintenance of the team—we shall get another fifty to sixty square miles, and shall thus be able to account for half our total area. But the extent of the carucate is really speculative, and, as I have said, the general Domesday statistics comprise only the smaller portion of the land—that to which the Commissioners assigned a definite appropriation and value. We may assume therefore that the aspect of this corner of Devon was very much wilder than these figures would indicate, and that, save between the estuaries of the Plym and the Yealm, where individual settlements were more thickly planted, the country was simply dotted with clearings.

It is worth noting too that a large proportion of the manors—more than a third—had no pasture attached, that a fourth were without wood, and that a large proportion had no meadow. The absence of natural pasture is indeed a distinguishing characteristic of the lowlying manors as compared with the upland; while it is the coast manors that as a class are peculiarly characterised by the absence of wood. The general conditions in fact correspond remarkably to those observable at the present day. The chief breadths of meadow land are evidently associated with rivers and streams, and were undoubtedly chiefly natural in their origin.

One very notable point is the fact that the number of ploughs or plough-teams fell far short of the requirements of the arable

land. Only a few manors were adequately supplied, and over the whole district there were not ploughs sufficient for three-fifths of the plough lands.

There are a number of interesting details in the statistics given of the former and present values of the various estates. The total stated value, at the time of the Survey, of all the manors set forth as comprised within the area reviewed was £126 4s. 9d. Money is commonly reckoned as being then worth thirty times its present value, which would give an equivalent rental of £3787 2s. 6d. The present rateable value of the district is at least £500,000. Therefore in the eight centuries that have elapsed since the compilation of Domesday, the annual value of the landed property in this district has advanced 140-fold, while so far as the Three Towns only are concerned it has been ten times as great—1400 times.

We are hardly in a position to contrast the improvement that had been effected between the Confessor's time and that of the Conqueror; for the previous value of the king's and of a few other manors are not stated. Assuming, however, that in them there was no change, we get a Saxon value of £115 13s. 6d., showing a difference of £10 11s. 3d. The net Norman improvement in twenty years was therefore nearly 10 per cent., or in present money £330.

The greatest changes effected by the Conquest were, as might be anticipated, in the ownership. Not a single manor here, at any rate, continued in the hands of its former lay lord, either as owner or as tenant, and the only link left between the old order and the new (church lands excepted) is the fact that Osulf, who had owned Compton and one of the Meavies, both of which passed to Judhel, had become, under Robert of Albemarle, tenant of Widey and East Whitleigh. In the days of the Confessor the lands were divided among thirty-nine proprietors,¹ of whom the larger majority held one or two manors only. Chief were Alebric, with 10½ manors; Alwin, with 9 manors; Aluric, with 8; the king, with 6; while Edmar and Brismar and Wadelo had 4 each. One manor was owned by four thanes jointly, and another by two.

¹ There are variations in spelling of names, which render it doubtful how far in all cases various forms may be associated.

The Conquest reduced these thirty-nine proprietors to ten (to nine only, if Notone is without the area); and one of these owned far more than all the others put together, Judhel, of Totnes, who held no fewer than forty-three manors, including all the lands of Alebric and of Aluric, and a half of those of Alwin, the other great Saxon landowner of the district. Next to Judhel came the Count of Moreton with fourteen manors, and the other chief lay lords, with the exception of Raoul Adobed (who had two) held four each. The Norman tenants were fifteen in number, and by them sixty-three of the eighty-one Devon manors were held, the remainder being retained in demesne.

It will be observed that with the three exceptions of Plintone and Elintone, where the presence of clergy is distinctly stated, and of Wicerce, where it is implied in the name, there is no evidence in our district of any ecclesiastical organization, though at no great distance outside we have also the monks of Tavistock and the canons of St. Germans. This agrees precisely with the testimony of ancient edifices; for with the single exception of Meavy, and that is of later date than the Survey, there is no trace of early Norman church architecture in this neighbourhood. It does not agree with the very early origin sometimes given to the vicarage of St. Andrew. Sutton at the time of the Survey was too unimportant to be a vicarage; but we can very well understand that in the course of the missionary labours of the religious of Plympton, it was selected as of easy access for them, and fairly central for the whole of the wide district originally included in the parish,¹ as one of their chief stations—precisely as meeting-houses are established in the thinly-peopled backwoods of America now. The form of occurrence of the names Macretone and Bucheside equally disposes of the imaginary original dedications to those very doubtful saints, the early St. Machir and St. Budock.

The stations of the British Church in this locality had disappeared under the Saxon rule. Whitchurch indeed seems to afford some evidence of an early origin; and the inscribed stones found at Buckland Monachorum certainly do point to a pronounced early ecclesiastical influence there: still these traces may be connected with the foundation at Tavistock. The dedication of Pennycross Chapel to the British saint Pancras might appear a stronger in-

¹ The Three Towns and suburban belt.

stance ; but I am convinced that this has simply arisen out of the corruption of the Kornu-British Pen-y-craes—"the head of the cross," probably referring to the crossing of two tracks or roads. On the other hand, though there is no distinct proof (unless the inscribed stone at Yealmpton be taken into account), both Plympton and Yealmpton may have been seats of the Keltic Church ; and we cannot believe that so wide, if so sparsely populated, an area was without some.

There are two or three interesting facts indicated by the stock returns of the Exeter Domesday. Rather over a third of the manors have no stock stated, and therefore were purely arable. Sheep were the most numerous class of farm animals, then as now ; but there were large numbers of half-wild swine among the woods ; and goats were fairly numerous on the uplands, by the coast, and in this immediate vicinity. Thus there were goats at Bickham, Bickleigh, Beer, Coltrestan, Cornwood, Lipson, Newton Ferrers, Rame, Stoke Damerel, Tamarlande, Weston Peveril, Widey, and Whitleigh. Swine are entered at Bickham, Bickleigh, Beer, where there were enough to give occupation to three swineherds ; Blackstone, which had one swineherd ; Buckland Monachorum, Brixton in Shaugh, Coltrestan, Compton, Cornwood, Yealmpton, Feniton, Goosewell, Langdon, Meavy, Membland, Natton, Newton Ferrers, Stoke Damerel, Staddiscombe, Tamarlande, Tor, Torry, Collaford, and Weston Peveril. Cornwood had also three wild horses, the ancestors of some of our Dartmoor ponies.

Our local examination of Domesday might be carried much more into detail, but I must not trespass further on your patience. In enquiries of this character we can only hope to approximate to the truth, and may well be satisfied if our main conclusions can be regarded as correct. I trust that the attempt now made for the first time, by the aid of the great Norman census, to bridge over the gap in our local history, which here, as elsewhere, yawns between the region of pure inference and the domain of stated fact, may not have been without interest, and may be at least of some value as an aid to future investigators.

APPENDIX.

IN this Appendix the full details of the Domesday entries for the Plymouth district are tabulated from the Exchequer book, with additional notes from the Exeter volume, and the differences between them noted. To give the full translation of both texts here would occupy too much space; and the tables, moreover, afford a far readier means of elucidating and comparing the leading statistical facts.

NOTES TO TABLE I.

BIRLAND.—Three of the eight entered as bordars were swineherds, rendering fifteen swine.

BLACHESTONE.—The one entered as bordar was a swineherd, rendering five swine.

CAME.—Three bordars. (*Exon.*)

DONE.—Formerly Alebric. (*Exon.*)

MIMIDLANDE.—Four bordars. (*Exon.*)

ULUEVETONE.—Three villeins. (*Exon.*)

NOTES TO TABLE II.

ANTONE.—Ermenhald held three parts, and the villeins the other third. (*Exon.*)

BACHEMORE.—Three ploughs. (*Exon.*)

BICHECOME.—Held by Robert of Herrefort. Villeins had four oxen in a plough. (*Exon.*)

BICHELIE.—A fishery, rendering five shillings.

BIRLAND.—Seven saltworks, rendering ten shillings.

BLACHESTANE.—A saltwork, rendering thirty pence. None of Alured's manors are entered in the Exon Domesday; but his name occurs in the "Terræ Occupatæ."

BOCHELAND (EGG).—A saltwork, rendering two shillings.

BOCHELAND (MONACHORUM).—A saltwork and a fishery, rendering ten shillings. (*Exon* says pasture one mile long by one mile broad.)

BURETONE.—Noted as having two ploughs.

COLRIGE.—The villeins had one beast in a plough. (*Exon.*)

CORNEHODE.—Three wild horses also; seven bordars. (*Exon.*)

ELFORDE.—A fishery, rendering twelve pence.

FERNEHILLE.—The villein has one ox in a plough. (*Exon.*)

GOSEWELLE.—One cow; and two oxen in a plough by the villeins.

HARESTANE.—Reginald half a plough. The villeins four oxen in a plough; two cattle.

LAMBSETE.—Two acres of meadow. (*Exon.*)

LEURICESTONE.—One of the two ploughs said to belong to Odo, and the other to his villeins. (*Exon.*)

MEWI (3rd).—Half mile coppice. (*Exon.*)

TABLE I.

TABLE SHOWING ANCIENT AND MODERN NAMES OF MANORS, LORDS, TENANTS,
AND POPULATION.

Domesday.	Modern Name.	Saxon Owner.	Norman Lord.	Norman Tenant.	Serfs.	Villeins.	Borlars.
Antone	Antony	Abbey of Tavistock.	Abbey of Tavistock.	Ermenhald.	4	12	15
Bathemore	Baccamoore	Elouf	Judhel of Totnes	Ralph	6	15	12
Plintone	Plympton	King	King	Canons		12	15
Plintone	Rame	King	Abbey of Tavistock.	Ermenhald.	4	4	1
Rame	Rame	Abbey of Tavistock.	William of Poillei	Robert	1	12	1
Saunford	Saunford Spiney	Brismar	Judhel	Turgis	1	4	1
Seage	Shaugh	Alebric	Judhel	Turgis	1	3	1
Seage	Shaugh	Alebric	Judhel	William	2	4	6
Sireford	Shierford	Four thanes	Count of Moreton	Reginald		4	3
Spredalestone	Spirdlestone	Alwin	Robert the Bastard		5	16	4
Stanchys	Stonehouse	Alwin	Robert the Bastard	William		1	1
Land of St. Peter of	Plympton	Brismar	Robert of Albemarle.	William		4	2
Stoches	Stoke Damerel	Aluric	Judhel	Walter		1	1
Stotescome	Staddiscombe	Alwin	King		1	4	2
Stoddone	Staddon	King	Ruad Adobed		7	16	6
Svdtone	Sutton	Sedwin	Alured the Briton		1	6	2
Tamarlande	(?)	Inenuar	King		9	6	6
Tamerton	Tamerton Folliott	King	Alured the Briton	Reginald	2	3	5
Tanbretone	Kings Tamerton	Siward	Count of Moreton	Ralph.	1	2	1
Tawi	Tavy	Wado	Judhel	William	1	3	4
Tori	Tor	Alebric	Count of Moreton		2	6	4
Torix	Torry	Alcherlo	King	William	1	1	1
Torneberie	Thornbury	Aluric	Judhel	Reginald	3	6	4
Uluvetone	Woolaton	King	Count of Moreton	Odo	1	1	1
Wachetone	Walkhampton	Alebric	Judhel	Osulf	8	20	15
Waliford	Collaford	Otre	Count of Moreton	Osulf	3	1	3
Wedrige	Withy Hedge	Ulnod	Judhel	Odo	1	2	1
Westone	Weston Peveril	Sawin	Ruad Adobed				
Wicere	Whitchurch	Wadelo	Robert of Albemarle.				
Wide	Widew	Godwin	Judhel				
Witelic	Whiteleigh (West)						
Witelic	Whiteleigh (East)						

TABLE I.

TABLE SHOWING ANCIENT AND MODERN NAMES OF MANORS, LORDS, TENANTS,
AND POPULATION.

Domesday.	Modern Name.	Saxon Owner.	Norman Lord.	Norman Tenant.	Serfs.	Villeins.	Bordars.
Antone	Antony	Abbey of Tavistock.	Abbey of Tavistock.	Ermenhald	4	12	15
Bachemore	Baccamoore	Elouf	Judhel of Totnes	Ralph			
Bachemore	Baccamoore	Seric	Judhel	Ralph		4	3
Bichecome	Bickham	Ailmar	Robert of Albemarle	Robert	1	2	1
Bichelle	Bickleigh	Brismar	William of Poillei		7	7	4
Birland	Beer Ferrers	Ordulf	Count of Moreton	Reginald	5	16	5-3
Blachestane	Blackstone	Ineuuar	Alured the Briton		5	4	1
Bocheland	Egg Buckland	Heche	Judhel		10	10	8
Bocheland	Buckland Mon.	Brismar	William of Poillei		12	24	10
Bricricestone	Brixton, Shaugh	Elmer	Judhel	Ralph		4	2
Bucheside	St. Budeaux	Alwin	Alured the Briton		4	5	
Bristestone	Brixton	Sedwin	Judhel	William		4	5
Bristestone	Brixton	Aluric	Judhel	William		4	5
Buretone	Burnaton	Alwin	Judhel	Odo	2	3	
Chichelesberie	Chittleburn	Ailric	Judhel	William			
Coltrestan	Callisham?	Aluric	Judhel	Torgis	1	3	2
Colrige	Colridge	Edmer	Judhel	Odo			2
Cantone	Compton Gifford	Osulf	Judhel	Stephen	2	6	4
Cornehode	Cornwood	Edmar	Count of Moreton	Reginald	8	8	8
Cumbe	Combe	Aluric	Count of Moreton	Reginald	1	3	2
Done	Down Thomas	Aluric	Judhel	William		4	
Elforde	Eford	Alwin	Robert the Bastard		2	3	1
Elintone	YeaImpton	King	King		10	16	9
Elintone	YeaImpton	King	King	Clergy	2	3	4
Fernehelle	Fernhill	Alwin	Judhel	Turgis		1	
Fineton	Fenton	Edmar	Count of Moreton	Drogo	2	8	4
Gosewelle	Goosewell	Heche	William of Poillei	Robert		1	3
Hagwile	Halwell	Aluric	Judhel	William	1	1	3
Hanechelole	Honicknowle	Wado	Count of Moreton	Reginald	2	2	
Harestone	Hearston	Edric	Count of Moreton	Reginald		2	1
Harestone	Hearston	Suet	Count of Moreton	Reginald	3	3	
Ho	Hoe	Alebric	Judhel	Stephen	1	6	2
Hovelande	Holland	Alebric and Algar	Judhel	Ralph		1	1
Langedone	Langdon	Heche	Judhel	Waldin	1	4	3
Langedone	Langdon	Gode	Judhel	Waldin		4	3
Lambsete	Lambside	Tovi	Judhel	Ralph	3	6	12
Lege	Lee	Alebric	Judhel	Ralph		3	
Leuricestone	Lipson (?)	Saulf	Judhel	Odo	1	2	
Lisistone	Lipson	Godwin	Count of Moreton	Reginald	1	4	3
Lochetore	Loughtor	Alebric	Judhel	Ralph	1	5	3
Macretone	Maker	King	King				
Macretone	Maker	Edward	Count of Moreton	Reginald	4	6	8
Manedone	Manadon	Colbert	Judhel	Odo	1	3	1
Metwi	(?)	Alwin	Robert the Bastard		1	5	
Mewi	Meavy	Edward	Judhel	Turgis	2	4	2
Mewi	Meavy	Osulf	Judhel	Nigel		1	1
Mewi	Meavy	Alward	Judhel	William	1		2
Mewi	Meavy	Alwin	Judhel	Turgis	1	3	2
Mimidlande	Membland	Alberic	Judhel	Waldin	1	5	3
Modlei	Mutley	Godwin	Judhel	Odo		2	
Modlei	Mutley	Alwin	Judhel	Odo		1	2
Notone	Natton (?)	Alwin the Abbot	Aby. of Buckfastleigh		6	9	12
Niwetone	Newton Ferrers	Edmar	Count of Moreton	Reginald	12	16	5
Odeford	Woodford (Lower)	Elmer	Judhel	Ralph	1	2	2
Odeford	Woodford (Higher)	Alebric	Judhel	Ralph	1	3	2
Pidehel	Pithill	Alebric	Judhel	Turgis		2	
Plemestoch	Plymstock	Sistric the Abbot	Abbey of Tavistock		5	4	9
Plintone	Plympton	King	King		6	15	12
Plintone	Plympton	King	King	Canons		12	
Rame	Rame	Abbey of Tavistock	Abbey of Tavistock	Ermenhald	4	4	15
Sanford	Sampford Spiney	Brismar	William of Poillei	Robert	1	12	1
Scage	Shaugh	Alebric	Judhel	Turgis		4	1
Scage	Shaugh	Alebric	Judhel	Turgis	1	3	1
Sireford	Sherford	Alebric	Judhel	William	2	4	6
Spredelstone	Spriddlestone	Four thanes	Count of Moreton	Reginald		4	3
Stanehvs	Stonehouse	Alwin	Robert the Bastard			1	
Land of St. Peter of	Plympton	Alwin	Robert the Bastard			2	
Stoches	Stoke Damarel	Brismar	Robert of Albemarle		5	16	4
Stotescome	Staddiscombe	Aluric	Judhel	William		1	1
Stotdone	Staddon	Alwin	Judhel	William			1
Svdtone	Sutton	King	King		1	4	2
Tamarlande	(?)	Sedwin	Ruald Adobed	Walter	1	1	
Tamerton	Tamerton Foliott	Ineuuar	Alured the Briton		7	16	6
Tanbretone	Kings Tamerton	King	King		1	6	2
Tawi	Tavy	Siward	Alured the Briton		9	6	6
Tori	Tor	Wado	Count of Moreton	Reginald	2	3	5
Torix	Torry	Alebric	Judhel	Ralph	1	2	1
Torneberie	Thornbury	Alcherlo	Count of Moreton	Alured	1	3	
Uluuevone	Woolaton	Aluric	Judhel	William		3	4
Wachetone	Walkhampton	King	King		2	6	4
Waliford	Collaford	Alebric	Judhel	William		1	1
Wederige	Withy Hedge	Otra	Count of Moreton	Reginald	1		
Westone	Weston Peveril	Ulnod	Judhel	Odo	3	1	1
Wicerce	Whitchurch	Sawin	Ruald Adobed		8	20	15
Wide	Widey	Wadelo	Robert of Albemarle	Osulf	3	1	
Witleie	Whiteleigh (West)	Wadelo	Robert of Albemarle	Osulf			3
Witleie	Whiteleigh (East)	Godwin	Judhel	Odo	1	2	1

- MODLEI (2).—Half a plough said to belong to Odo. (*Exon.*)
 ODEFORD (LOWER).—A saltwork and a fishery.
 PIDHEHEL.—Now worth four shillings. (*Exon.*)
 TAMERTON.—A saltwork, returning five shillings.
 TORI.—Wood is coppice. (*Exon.*)
 TORIX.—A plough and a half.
 ULUEVETONE.—Three villeins; pasture two furlongs by two furlongs. (*Exon.*)
 WITELIE (2).—Formerly and now worth ten shillings. (*Exon.*)

SAXON LANDOWNERS AND LANDS TEMP. EDWARD
 CONFESSOR.

- AILMAR.—Bichecome.
 ALOHERLO.—Torneberie.
 ALEBRIC, or ALEBRIX.—Ho, Lege, Lochetore, Odeford, Pidehel, Scage (2), Sireford, Torix, (and, with ALGAR) Hoveland.
 ALGAR (*with* ALEBRIC).—Hoveland.
 ALBERIC.—Mimidlande.
 ALWARD.—Mewi.
 ALURIC, or AILRIC.—Brisestone, Chichelesberie, Coltrestan, Cumbe, Done, Hagwile, Stotescome, Uluevetone.
 ALWIN.—Bucheside, Buretone, Elforde, Fernhelle, Metwi, Mewi, Modlei, Stanehvs, Stotdon.
 ALWIN THE ABBOT.—Notone.
 BRISMAR.—Bichelie, Bocheland, Sanford, Stoches.
 COLBERT.—Manedone.
 EDWARD.—Mewi.
 ERMENHALD.—Antone, Rame.
 ELOUF.—Bachemore.
 ELMER.—Brictricestone, Odeford.
 EDMER.—Colrige, Cornehode, Fenitone, Niwetone.
 EDRIC.—Harestane.
 GODWIN.—Lisistone, Modlei, Witelie.
 GODE.—Langedone.
 HECHÉ.—Bocheland, Gosewelle, Langedone.
 INEUUAR.—Blachestane, Tamerton.
 KING.—Elintone, Macretone, Plintone, Svdton, Tanbretone, Wachetone.
 OSULF.—Contone, Mewi.
 ORDULF.—Birland.
 OTRE.—Wederige.
 SAWIN.—Wicerce.
 SAULF.—Leuricestone.
 SEDWIN.—Brisestone, Tamarlande.
 SERIC.—Bachemore.
 SISTRIC THE ABBOT.—Plemestoch.
 SIWARD.—Tawi.
 SUET.—Harestane.
 THANES (FOUR).—Spredelstone.
 TOVI.—Lambsete.

ULNOD.—Westone.

WADO, *or* WADELO.—Hanechelole, Tori, Wide, Witelie.

Thirty-nine landowners, if no duplicates by variations of spelling.

NORMAN LORDS AND LANDS *TEMP.* WILLIAM THE CONQUEROR.

ABBEY OF BUCKFASTLEIGH.—Notone.

ABBEY OF TAVISTOCK.—Antone, Plemestoch, Rame.

ALURED THE BRITON.—Blachestane, Bucheside, Tamerton, Tawi.

COUNT OF MORETON.—Birland, Cornehode, Cumbe, Finetone, Hanechelole, Harestane (2), Lisistone, Macretone, Niwetone, Spredelestone, Tori, Torneberie, Wederige.

KING.—Elintone, Macretone, Plintone, Svdtone, Tanbretone, Wachetone.

JUDHEL OF TOTNES.—Bachemore (2), Bocheland, Brictricestone, Brisestone (2), Buretone, Chichelesberie, Coltrestan, Colrige, Contone, Done, Fernehelle, Hagwile, Ho, Hovelande, Langdone (2), Lambsete, Lege, Leuricestone, Lochetore, Manedone, Mewi (4), Mimidlande, Modlei (2), Odeford (2), Pidehel, Scage (2), Sireford, Stotescome, Stotdone, Torix, Uluevetone, Waliford, Westone, Witelie.

ROBERT OF ALBEMARLE.—Bichecome, Stoches, Wide, Witelie.

ROBERT THE BASTARD.—Elforde, Metwi, Stanehvs.

RUALD ADOBED.—Tamarlande, Wicerce.

WILLIAM OF POILLEI.—Bichelie, Bocheland, Gosewell, Sanford.

Ten lords; eighty-four manors.

NORMAN TENANTS.

ALURED.—Torneberie.

CANONS.—Plintone.

CLERGY.—Elintone.

DROGO.—Fineton.

NIGEL.—Mewi.

ODO.—Buretone, Colrige, Leuricestone, Manedone, Modlei (2), Westone, Witelie.

OSULF.—Wide, Witelie.

RALPH.—Bachemore (2), Brictricestone, Hoveland, Lambsete, Lege, Lochetore, Odeford (2), Torix.

REGINALD.—Birland, Cornehode, Cumbe, Hanechelole, Harestane (2), Lisistone, Macretone, Niwetone, Spredelestone, Tori, Wederidge.

ROBERT.—Bichecome, Gosewelle, Sanford.

STEPHEN.—Contone, Ho.

TURGIS.—Coltrestan, Fernehelle, Mewi (2), Pidehel, Scage (2).

WALDIN.—Langedone (2), Mimidlande.

WALTER.—Tamarlande.

WILLIAM.—Brisistone (2), Chichelesberie, Done, Hagwile, Mewi, Sireford, Stotescome, Stotdone, Uluevetone, Waliford.

Fifteen tenants; sixty-four manors.

TABLE II.

TABLE SHOWING EXTENT, CHARACTER, STOCK, AND VALUE OF MANORS.

Name.	Hidage.	Caru- cage.	Pasture.	Meadow.	Wood.	STOCK.				Ploughs.	Former Value.	Present Value.
						Cattle.	Sheep.	Swine.	Goats.			
Antone	$\frac{1}{2}$	6	10 a.	.....	30 a. cop.	7	80	...	...	7	100s.	100s.
Bachmore	$\frac{1}{2}$	4	1 m. $\times \frac{1}{2}$ m.	4 a.	20 a. cop.	2	28	...	...	2	...	20s.
Bichecome	4 v.	4	40 a.	10 a.	20 a.	7	20	5	10	1 $\frac{1}{2}$	5s.	15s.
Bichelle	1	8	1 m. \times 4 f.	4 a.	1 m. \times 1 m.	6	146	5	14	5	20s.	40s.
Birland	4	15	5 f. \times 1 f.	.....	1 $\frac{1}{2}$ m. \times 1 f.	6	...	3	30	6	60s.	100s.
Blachestane	1	4	3 f. \times 1 f.	.....	1 m. \times 3 f.	*	*	*	*	3	20s.	50s.
Sireford	$\frac{3}{4}$	3	.....	1 a. marsh	.....	1	60	...	...	2	20s.	20s.
Spredlestone	1 v.	2	10 a.	1 a.	.....	...	...	...	...	1	20s.	10s.
Stanehvs	1 f.	1	.....	.....	.....	...	...	...	...	...	...	5s.
Stoches	2	12	12 a.	.....	2 a.	15	160	12	40	10	40s.	70s.
Stotesome	1 v.	2	20 a.	$\frac{1}{2}$ a.	2 f. \times 1 f.	2	12	1	...	1	5s.	7/6
Stordone	1 v.	2	20 a.	.....	1 f. $\times \frac{1}{2}$ f.	...	...	...	...	...	5s.	5s.
Svdtone	1 v.	6	20 a.	2 a.	3 a. cop.	...	15	...	...	5 $\frac{1}{2}$	...	20s.
Tamarlande	1 v.	3	2 f. \times 1 f.	12 a.	$\frac{1}{2}$ m. \times 3 f.	5	11	4	9	2	40s.	10s.
Tamerton	2	10	3 f. \times 1 f.	3 a.	3 f. \times 1 f.	*	*	*	*	8	60s.	100s.
Tanbretone	1 v.	6	.....	.....	3 f. \times 1 f.	...	...	...	...	4 $\frac{1}{2}$	...	20s.
Tawi	1	7	16 f. \times 9 f.	4 a.	16 a. cop.	*	*	*	*	4	20s.	60s.
Tori	1	4	5 a.	3 a.	5 a.	2	...	6	...	1 $\frac{1}{2}$	20s.	15s.
Torix	1 v.	1	12 a.	1 a.	8 a. cop.	5	10	6	...	1 $\frac{1}{2}$	5s.	10s.
Torneberie	1 v.	3	40 a.	2 a.	.....	...	...	...	...	1	10s.	7s.
Uluvetone	$\frac{1}{2}$ v.	2	2 f.	$\frac{1}{2}$ a.	.....	...	...	...	...	$\frac{1}{2}$	4s.	5s.
Wachetone	$\frac{1}{2}$ v.	4	100 a.	1 a.	1 m. $\times \frac{3}{4}$ m.	3	50	...	...	4	...	60s.
Waliforde	1 f.	1	.....	.....	2 f. \times 1 f.	...	...	2	...	$\frac{1}{2}$	5s.	5s.
Wederige	3 v.	4	6 a.	.....	2 a.	...	...	...	...	...	...	3s.
Westone	1	4	4 a.	3 a.	4 a.	15	180	10	60	2 $\frac{1}{2}$	10s.	30s.
Wicece	1	12	1 m. \times 4 f.	20 a.	2 m. \times 4 f.	*	*	*	*	8	30s.	70s.
Wide	$\frac{1}{2}$	4	40 a.	.....	$\frac{1}{2}$ m. \times 4 f.	7	40	2	18	1 $\frac{1}{2}$	30s.	10s.
Witelle (West)	$\frac{1}{2}$	2	.....	.....	15 a. cop.	1	27	...	16	1	2s.	7/6
Witelle (East)	$\frac{1}{2}$	3	30 a.	.....	9 a.	...	...	...	...	2	5s.	10s.

The contractions used in this table are: h. for hide; v. for virgate; f. in hidage for ferling, in pasture or wood for furlong; m. for mile; a. for acre; cop. for coppice. The hidage shows the taxable area of each manor in Saxon times; the carucage, the Norman plough lands. The stars in the stock columns indicate manors which do not appear in the Exon *Domesday*.

TABLE II.

TABLE SHOWING EXTENT, CHARACTER, STOCK, AND VALUE OF MANORS.

Name.	Hidage.	Caru- cage.	Pasture.	Meadow.	Wood.	STOCK.				Ploughs.	Former Value.	Present Value.
						Cattle.	Sheep.	Swine.	Goats.			
Antone	1 $\frac{1}{2}$	6	10 a.	.....	30 a. cop.	7	80	...	...	7	100s.	100s.
Bachemore	1 $\frac{1}{2}$	4	1 m. \times $\frac{1}{2}$ m.	4 a.	20 a. cop.	2	28	...	...	2	...	20s.
Bichcome	4 v.	4	40 a.	10 a.	20 a.	7	20	5	10	1 $\frac{1}{2}$	5s.	15s.
Bichelle	1	8	1 m. \times 4 f.	4 a.	1 m. \times 1 m.	6	146	5	14	5	20s.	40s.
Birland	4	15	5 f. \times 1 f.	.....	1 $\frac{1}{2}$ m. \times 1 f.	6	...	3	30	6	60s.	100s.
Blachestane	1	4	3 f. \times 1 f.	.....	1 m. \times 3 f.	*	*	*	*	3	20s.	50s.
Bochelard (Egg.)	1	6	$\frac{1}{2}$ m. \times 2 f.	1 a.	200 a.	4	70	...	...	8	50s.	50s.
Bochelard (Mon.)	3 h. 1 $\frac{1}{2}$ v.	15	1 m. \times 3 m.	8 a.	4 m. \times 2 f.	20	130	40	...	10	50s.	100s.
Brietricestone	1 v.	3	10 a.	2 a.	.....	...	31	7	...	2	10s.	10s.
Buchside	1 $\frac{1}{2}$	5	.....	4 a.	$\frac{1}{2}$ m. \times 2 f. cop.	*	*	*	*	3	30s.	30s.
Bristestone	1 $\frac{1}{2}$	2	.....	1 a.	.....	1	80	...	...	2	15s.	15s.
Bristestone	1 $\frac{1}{2}$	2	.....	1 a.	.....	...	...	...	...	1	5s.	5s.
Buretone	1 f.	1 $\frac{1}{2}$	.....	3 a.	.....	...	...	...	...	2	10s.	10s.
Chichelesberie	1 $\frac{1}{2}$	2	.....	.....	2 f. \times $\frac{1}{2}$ f. cop.	...	...	...	...	...	5s.	12d.
Coltrestan	1 $\frac{1}{2}$	3	$\frac{1}{2}$ m. \times 2 f.	4 $\frac{1}{2}$ a.	14 a.	5	40	10	22	2	10s.	10s.
Colrige	1 $\frac{1}{2}$ v.	2	.....	1 a.	30 a. cop.	...	...	...	...	4	waste.	15d.
Contone	1 h. 1 v.	5	.....	.....	20 a. cop.	5	52	2	...	3 $\frac{1}{2}$	30s.	30s.
Cornehode	1	4	1 m. \times $\frac{1}{2}$ m.	.....	2 m. \times $\frac{1}{2}$ m.	10	...	3	22	3 $\frac{1}{2}$	40s.	40s.
Cumbe	1 $\frac{1}{2}$	4	.....	1 a.	.....	4	80	...	...	2	20s.	10s.
Done	3 f.	4	12 a.	.....	.....	...	90	...	...	2	15s.	15s.
Elford	1 $\frac{1}{2}$	3	.....	2 a.	20 a.	...	...	...	...	3	10s.	20s.
Elintone	2 $\frac{1}{2}$	20	10 a.	6 a.	3 f. \times $\frac{1}{2}$ f.	4	31	10	...	13	...	250s.
Elintone, Clergy	1	6	10 a.	2 a.	.....	...	...	...	...	2	...	10s.
Fineton	3	1	100 a.	15 a.	6 a.	...	15	5	...	...	80s.	40s.
Fernehelle	1 f.	6	$\frac{1}{2}$ m. \times 2 f.	1 a.	10 a.	...	...	...	...	...	3s.	3s.
Gosewelle	1 $\frac{1}{2}$	2	.....	.....	2 a.	3	30	5	...	1	5s.	5s.
Hagwile	1 $\frac{1}{2}$	2	.....	2 a.	2 a.	...	20	...	...	1	12s.	10s.
Hanechelole	1 $\frac{1}{2}$	2	3 f. \times 1 f.	1 a.	3 a.	...	...	...	...	...	10s.	10s.
Harestone	1 $\frac{1}{2}$	2	.....	2 a.	.....	2	...	...	...	1	15s.	10s.
Harestone	3 v.	2	.....	.....	$\frac{1}{2}$ m. \times 1 f.	3	15	...	...	1	15s.	10s.
Ho	1 v.	2	5 a.	.....	.....	4	40	...	...	2	20s.	20s.
Hovelande	1 v.	2	.....	2 a.	8 a.	...	...	...	...	...	10s.	5s.
Langedone	1 $\frac{1}{2}$	2	4 a.	2 a.	.....	2	84	1	...	2	10s.	10s.
Langedone	1 $\frac{1}{2}$	2	6 a.	2 a.	.....	...	...	...	...	1	10s.	10s.
Lumbete	1 $\frac{1}{2}$	6	.....	3 a.	.....	...	40	...	...	4	30s.	30s.
Lege	1 f.	1 $\frac{1}{2}$	30 a.	1 $\frac{1}{2}$ a.	10 a. cop.	...	...	...	...	2	3s.	3s.
Leuricestone	1 v.	2	.....	3 a.	8 a.	...	...	...	...	2	10s.	10s.
Lisitone	1 $\frac{1}{2}$	3	1 v.	1 a.	6 a. cop.	5	28	...	30	1	20s.	10s.
Lochetore	1 v.	2	30 a.	.....	5 a.	3	5	...	...	1 $\frac{1}{2}$	12s.	12s.
Macretone, Devon	1 v.	10	.....	.....	.....	...	...	...	...	...	117/6	...
Macretone, Corn.	1 v.	8	60 a.	.....	.....	...	...	...	...	3	30s.	20s.
Manedone	1 $\frac{1}{2}$	3	.....	2 a.	31 a.	...	...	...	...	2	20s.	12/6
Metwi	1 v.	2	100 a.	3 a.	3 f. \times 1 f.	...	...	...	...	2	10s.	20s.
Mewi	1 $\frac{1}{2}$ v.	4	$\frac{1}{2}$ m.	3 a.	5 f. \times 2 f.	...	20	...	...	1 $\frac{1}{2}$	15s.	30s.
Mewi	1 v.	1	.....	3 a.	.....	...	...	...	...	$\frac{1}{2}$	5s.	10s.
Mewi	1 v.	2	$\frac{1}{2}$ m. \times 2 f.	2 a.	$\frac{1}{2}$ a. cop.	9	20	10	...	1	5s.	7/6
Mewi	1 v.	2	5 f.	.....	4 f.	...	7	...	...	1	5s.	10s.
Mimidlande	1	5	.....	4 a.	1 a. cop.	6	42	7	...	2 $\frac{1}{2}$	20s.	20s.
Modlei	1 v.	1	3 a.	.....	2 a.	...	...	...	...	1	5s.	5s.
Modlei	1 v.	1	1 a.	.....	3 a. cop.	...	10	...	...	$\frac{1}{2}$	5s.	5s.
Notone	2	10	20 a.	2 a.	2 f. \times 1 f.	4	70	3	...	6	30s.	40s.
Niwetone	2	10	60 a.	2 a.	1 m. \times 1 f.	10	24	3	10	3 $\frac{1}{2}$	120s.	70s.
Odeford (Lower)	1 $\frac{1}{2}$	2	.....	1 a.	3 f. \times 1 f.	...	...	...	...	1	...	40s.
Odeford (Higher)	1 $\frac{1}{2}$	2	1 m. \times $\frac{1}{2}$ m.	.....	.....	...	...	...	...	1	...	...
Pidehel	1 f.	1	.....	$\frac{1}{2}$ a.	2 f. \times $\frac{1}{2}$ f.	...	...	...	...	$\frac{1}{2}$	2s.	2s.
Plemestoch	1 $\frac{1}{2}$	4	30 a.	$\frac{1}{2}$ a.	.....	4	70	...	...	5	20s.	40s.
Plintone	2 $\frac{1}{2}$	20	6 a.	20 a.	1 m. \times $\frac{1}{2}$ m.	5	50	...	...	14	...	270s.
Plintone, Canons	2	6	.....	.....	.....	...	...	...	...	4	...	35s.
Rame	1 $\frac{1}{2}$	7	30 a.	.....	10 a. cop.	8	100	...	18	4	40s.	40s.
Sanford	1 $\frac{1}{2}$	8	$\frac{1}{2}$ m. \times 1 f.	.....	1 m. \times 4 f.	...	4	...	...	3	10s.	20s.
Scage	1 v.	1 $\frac{1}{2}$	$\frac{1}{2}$ m. \times 4 f.	.....	5 a.	...	...	...	...	1	10s.	10s.
Scage	1 v.	1 $\frac{1}{2}$	$\frac{1}{2}$ m. \times 4 f.	$\frac{1}{2}$ a.	.....	...	38	...	...	1	10s.	10s.
Sireford	1 $\frac{1}{2}$	3	.....	2 a.	.....	1	60	...	...	2	20s.	20s.
Spredelestone	1 v.	2	10 a.	1 a. marsh	.....	...	...	...	...	1	20s.	10s.
Stanehyv	1 f.	1	.....	.....	1 a.	...	...	...	...	...	5s.	...
Stoches	2	12	12 a.	.....	2 a.	15	160	12	40	10	40s.	70s.
Stotescome	1 v.	2	20 a.	$\frac{1}{2}$ a.	2 f. \times 1 f.	2	12	1	...	1	5s.	7/6
Stotdove	1 v.	2	20 a.	.....	1 f. \times $\frac{1}{2}$ f.	...	...	...	...	...	5s.	...
Svdtone	1 v.	6	20 a.	2 a.	.....	...	15	...	...	5 $\frac{1}{2}$	...	20s.
Tamarlande	1 v.	3	2 f. \times 1 f.	12 a.	3 a. cop.	5	11	4	9	2	40s.	10s.
Tamerton	2	10	3 f. \times 1 f.	3 a.	$\frac{1}{2}$ m. \times 3 f.	*	*	*	*	8	60s.	100s.
Tanbretone	1 v.	6	.....	.....	3 f. \times 1 f.	...	...	...	...	4 $\frac{1}{2}$	...	20s.
Tawi	1	7	16 f. \times 9 f.	4 a.	3 f. \times 1 f.	*	*	*	*	4	20s.	60s.
Tori	1	4	5 a.	3 a.	16 a. cop.	...	...	...	...	1 $\frac{1}{2}$	20s.	15s.
Torix	1 v.	1	12 a.	1 a.	5 a.	2	...	6	...	1 $\frac{1}{2}$	5s.	10s.
Torneberie	1 v.	3	40 a.	2 a.	8 a. cop.	5	10	6	...	1	10s.	7s.
Uluwetone	1 $\frac{1}{2}$	2	2 f.	$\frac{1}{2}$ a.	.....	...	...	...	...	$\frac{1}{2}$	4s.	5s.
Wachetone	1 $\frac{1}{2}$ v.	4	100 a.	1 a.	1 m. \times $\frac{1}{2}$ m.	3	50	...	...	4	...	60s.
Waliforde	1 $\frac{1}{2}$ v.	1	.....	.....	2 f. \times 1 f.	...	...	2	...	$\frac{1}{2}$	5s.	5s.
Wederige	1 f.	$\frac{1}{2}$	6 a.	.....	2 a.	...	...	...	...	...	...	3s.
Westone	3 v.	4	4 a.	3 a.	4 a.	15	180	10	60	2 $\frac{1}{2}$	10s.	30s.
Wicerce	1	12	1 m. \times 4 f.	20 a.	2 m. \times 4 f.	*	*	*	*	8	30s.	70s.
Wide	1 $\frac{1}{2}$	4	40 a.	.....	$\frac{1}{2}$ m. \times 4 f.	7	40	2	18	1 $\frac{1}{2}$	30s.	10s.
Witelie (West)	1 $\frac{1}{2}$	2	.....	.....	15 a. cop.	1	27	...	16	1	2s.	7/6
Witelie (East)	1 $\frac{1}{2}$	3	30 a.	.....	9 a.	...	...	...	...	2	5s.	10s.

The contractions used in this table are: h. for hide; v. for virgate; f. in hidage for fering, in pasture or wood for furlong; m. for mile; a. for acre; cop. for coppice. The hidage shows the taxable area of each manor in Saxon times; the carucage, the Norman plough lands. The stars in the stock columns indicate manors which do not appear in the *Exon Domesday*.

A LONG VACATION.

SYLLABUS OF LECTURE BY MR. ROBERT COLLIER.

(Read October 19th, 1882.)

ON board the *Celtic*. The American language. New York Custom House; the "Check" system; the Central Park; New York omnibuses; road and rail. Chicago; a domestic bookseller. Railways in the Far West. The book-man. The Prairie. The Rocky Mountains; ascent of Pike's Peak; a sunrise party; the highest inhabited house in the world. The Chipmunk, Denver. Salt Lake City; a Mormon sermon; a little mistake. Ogden. San Francisco. The Seal Rocks. On the way to the Yo-Semite Valley. Acorn-larded firs. The woodpecker and the bluejay. The Yo-Semite Valley; a Scotchman on the Valley. Divorce in California. Indians. Fort Yuma. Tucson. Worship of beauty. Santa Fé. St. Louis. Production of food in the United States. Boston; the Autocrat of the Breakfast-table. On board the *Britannic*; a storm on the Atlantic. Home.

THE VENTILATION OF BUILDINGS.

SYLLABUS OF LECTURE BY MR. C. W. DYMOND, F.S.A., M.INST.C.E.

(Read October 26th, 1882.)

1. *Importance of the Subject*.—The question concerns especially civilized societies in the colder climates. Too much ignored, and too little understood. Causes of apathy and ignorance. Dangers of neglecting atmospheric conditions of health. Certain general and characteristic national resources. Illustrations of mistaken practice in building, and of the effects of good ventilation.

2. *General Statement of the Case.*—Indications of deficient ventilation; synopsis of its effects. Temperature no indication of purity of atmosphere. Causes of impurity of air in dwellings; results of respiration and combustion; products of decay. Measure of aërial impurity.

3. *Ordinary Remedies.*—Their advantages and drawbacks.

4. *Constitution of the Atmosphere.*—Constant and adventitious ingredients. Ozone.

5. *Scale of Atmospheric Impurities.*—When air ceases to be respirable. Proportions of carbonic acid in the air of various buildings.

6. *Rate of Production of Atmospheric Impurities.*—(a) By respiration and perspiration. (b) By combustion.

7. *Cycle of Aërial Movements in an Apartment.*—Causes and courses of currents. Height of rooms less desirable than area. Effect of wind on contained air. Causes of failure in popular contrivances for facilitating escape of smoke. Supply of fresh air more important than removal of that which is foul. Propagation of germs of disease.

8. *Rate of Admission of Air.*—(a) For respiration. (b) For combustion (illumination). (c) Ditto (warming).

9. *Temperature of Air-supply.*—(a) For ordinary apartments. (b) For nurseries and sick-chambers. Objectionable methods of heating air.

10. *Density of Air-supply.*—Of no importance. Plenum and vacuum ventilation.

11. *Principal Contrivances for Aiding Ventilation: their Merits and Defects.*—(a) Cooke's wire-gauze air-openings. (b) Tobin's system. (c) Wind-sail and "mulguf." (d) Intersolar air-supply. (e) Chimney-cowls. (f) Arnott's chimney-valves. (g) Rickets' ventilating globe gas-lights. (h) Watson's ventilators. (i) Intersolar air-drains. (k) Wheeler's system. (l) Edwards' "vomitorium." (m) Hot-air "registers." (n) The author's system.

MODERN YACHTS.

SYLLABUS OF LECTURE BY MR. W. G. TWEEDY.

(Read November 2nd, 1882.)

SAILING yachts alone treated of. Definitions and principles explained. Displacement and buoyancy; centres of various kinds; moments; stability; resistances to motion. Lines. Mr. Scott Russell's wave-line theory; Mr. Colin Archer's generalization of it explained; how applied to test a design. Results of testing various yachts. Tonnage; measurement, and its effect on the design of modern yachts. What we may come to. The *Jullanar*; the *Evolution*; the two *Fredas*; the *May*, *Sleuth-hound*, and *Annasona*.

THE BASIS OF MR. HERBERT SPENCER'S PSYCHOLOGY.

SYLLABUS OF LECTURE BY REV. PROFESSOR CHAPMAN, M.A.

(Read November 9th, 1882.)

GENERAL statement as to the scope of psychology. The place of this science in Mr. Spencer's system of philosophy. The question as to the real foundation on which his psychology rests. The assumed basis explained and illustrated. The natural development of the views thus entertained. Considerations which render the positions of Mr. Spencer unsatisfactory. The bearing of the conclusions arrived at in his work on psychology upon his peculiar view of evolution.

SANITARY AXIOMS AND MUNICIPAL BYE-LAWS.

SYLLABUS OF LECTURE BY MR. APPLETON, F.R.I.B.A.

(Read November 16th, 1882.)

SANITARY science known to the ancients. Present era of sanitary science and legislation. Some old forms of sewers. Public Health Act of 1848, and Amendment Acts up to 1875. Model Bye-laws of 1877. Axiom No. 1. Defect in Bye-law No. 6. Axiom No. 2. Suggested addition to Bye-law No. 28. Axiom No. 3. Sewer and drain ventilation; bye-laws needed for same. Domestic water supply. Axiom No. 4.

WORDSWORTH'S LIFE AND POETRY.

SYLLABUS OF LECTURE BY REV. W. E. MELLONE.

(Read November 23rd, 1882.)

WORDSWORTH'S place among poets. The father of a higher school of poetry. The time in which he lived, and its effects. Other poets more affected by the active spirit of the age; Wordsworth, by the principles underlying the action. The progress of mankind in the habit of reflection shown by the history of poetical literature. Wordsworth not the intellectual peer of the greatest poets. Not too much to be claimed for him. He is the interpreter of nature. His devotion to work, and ideal of duty. Conduct under depreciation and derision. His deficiencies and faults. "Lumps of gold engulphed in gravelly beds." The fault often in the reader. A glance at some of his greatest works. The *Prelude*. The modern forcing system of education. The "model child" and his trainers. Wordsworth's idea of what childhood should be. Brief review of his life. School and college days. The year in France. Wordsworth and the French Revolution. Intimacy with Southey and Coleridge. Honours at Oxford. Poet-laureate. Quiet happiness of his old age. His own benediction applied to himself.

LIGHTING AND HEATING.

SYLLABUS OF LECTURE BY DR. R. OXLAND, F.C.S.

(Read November 30th, 1882.)

A SKETCH of the advances made in artificial lighting and heating in the course of the past half-century. The present development of gas lighting ; its prospects for the future. The recent advances of electric light ; a glance at the principles involved ; consideration of its probable future. The common methods of applying heat, in plus and minus quantities, for cooking, for heating, for cooling purposes. Illustrations of the use of gas for heating and for cooking purposes. Necessities and advantages of the greatly increased consumption of gas contemporaneously with the increased utilization of the resources of electricity.

SANITARY SCIENCE. No. II.

SYLLABUS OF LECTURE BY MR. A. R. DEBNAM.

(Read December 7th, 1882.)

FAULTS in the laying of house-drains. The proper fall and size of drain-pipes. Flushing of drain-pipes. Syphon and other water-traps. Disconnection of the house from the sewer. Lead and iron soil-pipes. Evils arising from defective soil-pipes. Ventilation of soil-pipes. Water-closets and their positions. Water-closet apparatus, and their defects. D-traps, and the danger incurred by using them. The best sanitary appliances for the water-closet. The proper position for the outlet of waste-pipes.

THE FOUNDERS OF CHARLES CHURCH.

PART II. THOMAS BEDFORD.

BY MR. E. G. BENNETT.

(Read December 21st, 1882.)

My lecture of last year bore especially upon the founding of Charles Church, and in connection therewith upon Robert Trelawny, who was instrumental in obtaining the authority from the King and Parliament for building the Church, and now to-night I have to ask your attention for another founder, the Rev. Thomas Bedford, of Queen's College, Cambridge.

The date and place of the birth of this divine I have not been able to ascertain, and until recently all that was known of him was the account given by Mr. J. Brooking Rowe:¹ "On the death of Dr. Wilson (1643) the lecturer, Thomas Bedford, was appointed his successor by the king. This, however, the men of Plymouth, then, as for some time previously, strongly Puritan and anti-monarchical, would not consent to. He was expelled from the benefice, and in consequence of a sermon he had preached, and perhaps on account of his friendly relations with the king, his patron, was thrown into the town jail—bad long after in Howard's time, and probably much worse then; for it is described as *nasty*—where he was kept until sent off by sea prisoner to London. He was never heard of after, and it is supposed that he either died on the passage or in prison."

Recent researches have, however, enabled the history of this good man to be traced with more certainty.

In the *History of Cornwall*, by C. S. Gilbert, it is said that he was descended probably from a Northamptonshire or Warwickshire family. He was educated at Queen's College, Cambridge, where he took his degree in Arts, and subsequently proceeded Bachelor in Divinity; he is next found as schoolmaster at Adderston, in

¹ *Parish and Vicars of St. Andrew*, p. 36.

the county of Warwick ; and he then appears to be living in Plymouth, for on the 27th May, 1633, there is a letter from King Charles to Bishop Hall, of Exeter. "His Majesty understands that the Incumbent of Plymouth has been troubled by refractory persons endeavouring to maintain a lecturer there contrary to the approbation of the Incumbent. The Bishop is required not to admit any presentation to that Church in prejudice of the Incumbent, and to settle Thomas Bedford, who is approved by the Incumbent, in the place of Lecturer, and not to permit him to be disquieted by Grosse."

Soon after this recommendation — namely, in 1634 — Henry Wallis was succeeded as Vicar by the learned Aaron Wilson, and the approbation of the former merged into the friendship with the latter, which lasted during life, and under date September 19th, 1635, the following entry is found in the Town Books: "Mr. Thos. Bedford, batcheleor in Divinitye, was commended by the King's Mat. to the Lord Bishope of this Diocesse to be established Lecturer in this Towne. And whereas hee hath livd and preacht here almost foure yeares with good approbation shall from this daye be establisht to be a Lecturer here, and shall have during his residence and preaching here for his maintaynance One hundred pounds a yeare, to be payd him quarterly. — JOHN MARTYN, Maior — ROBERT TRELAWNY."

So far as Plymouth is concerned, this is our introduction to Thomas Bedford ; nothing is known of his association with, or the part he played in, the foundation of Charles Church ; but a man of such mark, who had been called to preach his sermon upon "The ready way to True Freedom" at St. Paul's Cross on the Feast of St. John Baptist, June 24th, 1638, must evidently by his position have been closely connected with his friend Robert Trelawny, first of all in the efforts to obtain the Act authorizing the construction of the Church ; have been cast down by the apparently fruitless efforts of eight years of labour and waiting ; and at last have been as joyful over the sudden and apparently unexpected successful termination of their labours as Robert Trelawny himself, to whom belongs the actual honour of obtaining the Act.

Staunch Royalists, both Bedford and Trelawny must now have turned their attention to raising the necessary funds for the building of the church, and it may be surmised that while the eloquent tongue of the lecturer of Plymouth resounded through the long

aisles of the mother church of St. Andrew in the evenings, addressed to his loving and beloved auditors of the town of Plymouth, the learned and fervent persuasions of Aaron Wilson, Doctor of Divinity, Archdeacon of Exeter, and Vicar of Plymouth, were not wanting in the mornings.

The two pastors were close friends and fellow-workers in full sympathy with each other, and regarded with veneration and respect by their hearers. To us the spectacle of the evening lecture in St. Andrew's Church would appear strange; each hearer in those days brought his own candle or lamp, and fixed it in some part of his pew most convenient to himself, and the effect of the dimly-lighted church must have been picturesque. First oil lamps, and later still the gas of our day, have abolished the taper or candle; but within living memory the primitive mode of lighting is remembered in some of our Cornish towns, and I have seen the lantern, which was carried to and from church, and fixed on the seat during services, cherished as a relic.

The efforts for building the new church were successful, and gifts flowed in. In 1634 the Coney Yard, then Gayer's Yard, was given and dedicated by John Hele of Wembury, Esquire. The Coney Yard, or Gayer's Yard, was not, however, the site finally decided upon; for it was situated, Mr. Worth has ascertained, in the south part of the town. The actual site was given by William Warren, vintner, of Plymouth. Mr. Worth has found among the Corporation records the deed, dated 21st August, 1665, by which Warren conveys to the Mayor and Commonalty a close, piece or parcel of land, containing by estimation one acre, near adjoining to a place called "Hampton Shute," whereon Charles Church was built. The following day the Mayor and Commonalty grant by deed to William Warren and the heirs of his body lawfully begotten in consideration of his gift a piece of land for burial, eight feet from east to west and six feet from north to south, next "adjoining to the east and north walls of the place now commonly called the chancel in Charles Church," and also a seat fourteen feet six inches from east to west, and three feet six inches from north to south, "to hear divine service and the word of God preached." As soon as the Act was obtained, in 1640, private subscriptions must have been made, and the building commenced. The troubles of the civil war and the struggle between the King and Parliament were fast approaching, but the builders went on,

and before the storm of the siege of Plymouth fell upon the town considerable progress had been made. Robert Trelawny, who died in 1644, left by his will an order to his executor to pay the sum of £200 when demanded, which he had promised to contribute towards the building of Charles Church. In this may not unfairly be traced the payment by instalments of certain promised sums, and if in his imprisonment and adversity he provided for the payment of the balance of his promised contribution, it may be inferred that in his prosperity he had not forgotten liberality. The example was no doubt followed by his townsmen, and, says Mr. Henry Woollcombe in his *History of Plymouth*, "I have seen documents by which it seems that an assessment was made on the inhabitants to levy the sum of £ remaining unpaid for this church." No doubt the municipal authorities in those days did things which would now bring down upon them the terrors of the Court of Chancery, with its array of writs and injunctions; but the assessment could not even then have been more than a voluntary rate, the levying which was only justified by the freedom with which subscriptions had been forthcoming. This rate, however, was for the completion of the church, and before the siege it would seem that the building had got no farther than the walls; but it is probable that substantial progress had been made. This supposition is confirmed by the fact that during some recent alterations, when a part of the roof of the chancel was raised, the present respected parish clerk on mounting the scaffold observed that strong iron pegs were driven perpendicularly into the wall, which it is supposed must have been used for fastening an awning or temporary covering at that level. Further corroboration is afforded by the following entry (copied apparently from one of an earlier date) in the second volume of the Register: "Sam^l junior y^e son of Samuell Brely senior was borne y^e 26th of December 1643 and baptized the one and thirtieth day of the same month." Though the fact is not expressly so stated, such an entry in the Register of Charles may fairly be regarded as a proof that the baptism was in Charles Church, and the building so far advanced as to be available for sacred uses.

On this point too tradition may have its value, and tradition says that the horses of the troops defending the town were stabled in Charles Church. This is not at all unlikely, as such buildings, it is known, were frequently so used during the Civil War, as well as

in wars of earlier and later date. At the same time we have an entry in the books of St. Andrew: "1643, paid for 7lbs of Candles for the Souldiers that were at the Church ready to go forth on a party the 6th and 7th Oct., and 14th Oct.;" and if St. Andrew was so used Charles was not likely to be excepted. On the other hand, the "Trve Mapp and Discription of the Towne of Plymouth, A.D. 1643," has no indication of Charles Church; but the absence of any mention of the church is not to be taken as evidence of much value one way or the other, because the author of the map was more intent upon giving accurately the fortifications, with the works and approaches of the enemy, than in giving a detailed description of the buildings of the town.

We have now come to the year 1643. Dr. Aaron Wilson had been gathered to his fathers, as is commemorated in the tomb in the southern aisle of St. Andrew, and Bedford was promoted by the king from lecturer to vicar. The Parliamentary spirit was strong in Plymouth. The inhabitants resented the appointment of a man thoroughly at variance with their principles, and so successful were they in their opposition that when the case was brought before Parliament, that body felt no doubt that it was undesirable for a man of such learning and capacity to be in office in their headquarters in the West, and also perhaps knowing that his power of winning friends to himself personally was likely to be detrimental to their cause, even though the preacher of their own choice had been installed, on the 3rd June, 1643, passed the following resolution: "That Mr. Geo. Hughes be recommended unto the Town of Plymouth to be their Lecturer to preach there;" and on the 4th September the following order was passed by the House: "Resolved that Mr. Bedford shall be discharged of being a Lecturer in the Town of Plymouth, and that he be sent for as a delinquent by the Serjeant-at-Arms."

The House evidently would not even recognize his appointment as vicar, and the times were peremptory. Plymouth, the stronghold of their cause in the West, was assailed by foes without—for in November, 1642, the Royalist forces had begun the siege—and by treachery within, for an attempt to yield up the island of Plymouth to the Royalists had been discovered. For this latter attempt Sir Alexander Carew, then high in office, was arrested and brought to the block on Tower Hill. Sustained as the Roundheads were by strong religious enthusiasm, it behoved the House to make sure that

the ardour of their adherents should be sustained by suitable spiritual nourishment. Bedford was strong as a Royalist; he would not be bent, so he must be broken, and the voice of the reader in St. Andrew's Church must be in accord with the popular side. Accordingly the eminent divine was superseded, the newly-appointed vicar was arrested and thrown into the town jail, then and now called, in local parlance, the clink. The discipline of prisons, and the care of prisoners, was very different in those days from what it is now. The complaints of the prisoners were heard by passers-by, and even amid the excitement of the siege men had time to regard with indignation the sight of one who for fourteen years had "lived and preacht with approbation," and by his consistent and kindly character had won the respect of friend and foe, thrust into the "nasty" jail, as it was termed. Walker, in his *Sufferings of the Clergy*, relates the incident that the governor of Plymouth was changed at the time, and the friends of Bedford hoped that the opportunity might have been taken by the authorities to have mitigated the vigours of the imprisonment; but although the governor was changed no sign was given, and at last the authorities were startled by the free expression of the opinion of one of the preachers of the town, who expounded from the text, "And Festus willing to show the Jews a pleasure left Paul bound," pointedly alluding to the circumstances of the vicar of Plymouth. "But," says Walker, "the preacher was like to have paid dear for the application; for he had much ado to escape accompanying Mr. Bedford in prison, and administering to him in his bonds."

Soon after this Bedford was conveyed away by sea, and Plymouth knew him no more. It is only within a recent period that his later history has been traced, and when found it was under such singular surroundings that for a long time he could not be identified as the Bedford of Plymouth. He was alive in 1643 in Plymouth. In the same year he is again heard of; for Robert Trelawny, by his will of that date, gave to "Thomas Bedford, Bahr. in Divinity, £150 in money to be paid the one halfe within a yeare, and the other halfe within 2 yeares after my death." The following four years is a blank; but on the 5th May, 1647, a Thomas Bedford was presented to the living of St. Martin Outwich, Threadneedle Street, London, by the Merchant Tailors' Company; and from 1649 to 1652 he is found acting as one of the examiners of Merchant Tailors' School. This school, as an important

instrument in the education of youth, and in the formation of public opinion in the heart of the metropolis, was sharply looked after by the Parliament. One of the head masters who was not sufficiently deferential to the Parliamentary cause, or too outspoken in the expression of his own opinions, was summarily removed from his office, and the order to that effect was signed by Sir Francis Rous, the Speaker of the House of Commons. Rous was a near relative of the man of that name whose tomb is in St. Dominick Church, as of Halton House in that parish. Name and house have since come down from their dignity—the former is lost, and the remains of the latter are to be seen in a simple farm-house on the border of the river Tamar.

The presentation of Thomas Bedford to the living is thus inserted in the Records of the Merchant Tailors' Company.

"Tempore Georgii Mellish Mri.

"A Court of Assistants here held this fifth day of May Anno Dm^o 1647 anno regni Caroli Anglice &c vicesimo.

"Mr. Bedford chosen	}	This day Mr. Crawford a Reverend
"Parson of Martin		Minister of God's word—Mr. Rowland
"Outwich.		

"Wilson, Senio^r, Mr. Bateman, Mr. Hunt, Mr. Beardlock, Mr. Vincent, & Mr. Harrison, accompanied wth divers other of the parishioners of the parish of Martins Outwich, came to this Court & desired That Mr. Thomas Bedford Batchello^r in Divinity might be chosen and presented to the parsonage of these parish (the being in the Companie's guift) & void by the resignacon of Mr. Walter Bridges, the late Incumbent there. Whereupon this Court proceeded, and put in Eleccion the said Mr. Thomas Bedford and Mr. Hayward to supply their cure. And the choice by most voices fell upon Mr. Thomas Bedford. And an Instrument of Presentacon is to be prepared for that purpose to be sealed wth the Comon Seale of this Society."

"19th May 1647.

"There was likewise sealed wth the Comon Seale of this Society an Instrument of Presentacon for Mr. Bedford who was at the last Court of Assistants chosen Parson of Martins Outwich."

So far there is no sign but that the Merchant Tailors' Company willingly joined and acquiesced in the appointment; but in the history of Merchant Tailors' School, by Wilson, the following

significant note with reference to the appointment of Bedford as one of the examiners of the school appears :

“This person was thrust upon the Company by the Committee that took upon itself to dispose of other men’s livings, as Rector of St. Martins Outwich, in the room of Thomas Peirce ejected, though the patronage of that church had for centuries belonged to them.”

There is a slight inaccuracy in this note, as Thomas Peirce, ejected in 1643, was followed (10th November, 1643) by Lyonel Goodwich, who resigned, and was followed (20th November, 1645) by Walter Bridges, who in turn resigned, and was followed by Bedford ; but the result is clear. Thomas Bedford was forced upon the Company by the House of Commons as a Parliament-man. The identity so far as that he was a Bachelor of Divinity would be satisfactory ; but how can the change in teaching and opinion be reconciled ? Could he, who was deprived of his living in Plymouth in 1643 on account of his Royalist opinions, and bore persecution almost to death, be the same person who in 1647 accepted preferment at the hands of the Parliament ?

Both men—if they were distinct—were of kindly disposition. In Plymouth the one had earned “good approbation” from the men of the West, and he of St. Martin Outwich became beloved and honoured by the Merchant Tailors ; for in their Record is the following :

“9th July, 1651.

“This day upon the request of Mr. Bedford the Minister of this parish on behalf of his Sonn William Bedford who was lately elected & sent from Merchant Tailors School to St. Johns Colledge in Oxon. This Court doth give & bestow upon his said sonn the sune of v^{li} being the remainder of Mr. Nixons money given for thencouragem^t of poore Scholars. Our Mr. to pay the same & this order to be his discharge.”

Again, on 1st June, 1652 :

“This Court be informed that Mr. Bedford the parson of this parish continues very weake & sickly doth give & bestow upon him x^l more, besides the x^l formerly given him by the Master & Wardens, for his supply & comfort in this time of his visitacon. Our Mr. to pay the same & this order to be his discharge. And further this Court doth appoint & desire Dr. Gill to be Examiner in his roome att the Schoole Electon now att hande.”

On the 28th August, 1652, the Court "is pleased to bestow x^l" more for the same reasons.

Here all entries as to Bedford cease in the Records, and, with the exception that periodically between 1649 and 1652 he had been named one of the Examiners of the School, there are no other entries relating to him. The registers of St. Martin Outwich Church have all been lost or destroyed except one of 1560, which is now preserved at St. Helen's Church, Bishopsgate Street; so that we have to turn elsewhere to find the missing link.

The veritable Bedford was a man of mark and learning. Twice had he been called to preach at Paul's Cross—the first time on the 26th August, 1621, when his subject was, "The Sinne unto Death. or an ample discovery of that fearfull sinne the sinne against the Holy Ghost, together with the signes, degrees, and preservatiues thereof. By Tho. Bedford, Mr. of Arts in Queene's Colledge in Cambridge. London. Printed by John Dawson for William Sheppard and are to be sold at the signe of the Starre vnder St. Peter's Church in Cornhill and in Pope's-head Alley 1621." The second time in 1638, when he delivered, as before mentioned, "The Ready way to True Freedom, set doune in a Sermon Preached in the Publique Lecture appointed for S. Paul's Crosse on the feast of S. John Baptist June 24th, 1638. By T. B. Pr: Pl: (Prælectoris Plymothiensis) London. Printed by E. G. for Abel Roper, at the blacke spreade Eagle, over against S. Dunstane's Church in Fleet Street 1638."

Bedford also wrote "A Treatise of the Sacraments according to the Doctrine of the Church of England touching that argument, collected out of the Articles of Religion, the Publique Catechism, the Liturgie, and the Book of Homilies. By T. B. Pr: Pl: London. Printed by Richard Bishop, for Abel Roper, and are to bee sold at his shop, at the black spread-Eagle in Fleet-Street, over against S. Dunstons Church 1638," with a dedication by "Aaron Wilson Arch-Exon & Vic. de Plymouth."

An examination of a pamphlet entitled "*The Compassionate Samaritan*" followed in 1647—the work probably of his hours of deepest affliction and trial; and in the same year "*An Examination of the Chief Points of Antinomianism collected out of some Lectures lately preached in the Church of Antholines Parish, London.*" In 1649 was published "*Some Sacramental Instructions; or, An Explication of the Principles of Religion.*" The two last of

these works appear in the British Museum Catalogue of Printed Books. And last of all comes "*Vindicæ gratiæ Sacramentalis*, 1650, 8vo, London."

It is to be remarked that the adjacent churches of St. Martin Outwich in Threadneedle Street, and St. Antholines or St. Anthony in Watling Street, both shared the same fate. Both have been destroyed—the first in 1873, and the second in 1876, and their sites secularized and built over.

The lectures at St. Antholines were of great notoriety in their day. "To hear these sermons," says Clarendon, "there was so great a conflux and resort of the citizens, out of humour and faction; by others of all qualities, part of curiosity; by some that they might the better justify the contempt they had of them; that from the first appearance of day in the morning of every Sunday to the shutting in of the light the church was never empty. They (especially the women) who had the happiness to get into the church in the morning (they who could not hung upon or about the windows without, to be auditors or spectators) keeping the places till the afternoon exercises were finished."¹ "S. Antholine's," says Dugdale (from its morning lectures) "was the grand nursery whence most of the seditious preachers were after sent abroad throughout all England to poyson the people with their anti-monarchical principles."²

Here is found Bedford lecturing in 1647, and perhaps it was these very lectures which procured him his appointment as rector of the neighbouring church of St. Martin Outwich; or perhaps it was the price which willingly or unwillingly he had to pay to justify his appointment in the eyes of the Committee of the House of Commons, who were every whit as exacting in their ecclesiastical appointments as Queen Elizabeth, when she brought a too independent dean to his senses by exclaiming in anger, "I frocked you, and I'll unfrock you."

With respect to controversial theology of a marked Puritanical character, this is the first and last appearance of Thomas Bedford, so far as can be traced. Just before his death in 1652 he appears to have had a controversy with Richard Payter; but taking all the evidence as it stands up to this point, he would have been a bold man who declared unhesitatingly that Bedford the Royalist and

¹ CLARENDON, 1826, vol. i. p. 331.

² *Troubles in England*, fol., 1681, p. 37.

Bedford the Parliamentarian was one and the same person. Alas ! however, for the constancy of even the best of men, so it was.

John Davenant, Bishop of Salisbury, wrote divers theological works ; among others the "*Dissertationes de Morte Christi et de Predestinatione.*" Davenant died in 1641, and Dr. Edward Davenant sent this and other works to Archbishop Usher for publication ; but the wretched state of the times prevented their appearing for some years ; and in 1650 the work came out, edited, not by the archbishop, but by T. B. In an epistle to the well-affected reader, avowedly by Thomas Bedford, he says that "Having divers years since delivered some few (sermons) out of this text to mine auditory I did lately (upon warning given) take it once againe in hand, and alter, change, correct, and enlarge it till I brought it to this quantitie in which it is, so preparing it for a more noble audience. Then finding it to be overlong to be rehearsed at once I was constrained againe to epitomize. Here therefore hast thou at large the whole body of that discourse whose epitomie was rehearsed in publike."

In 1650 Bedford, at the suggestion of Usher, published, along with two divinity theses of his own, a letter of Bishop Davenant to Dr. Ward, entitled "*Epistola de Sacramentis ;*" and in the same year presented his own and Bishop Davenant's works, edited, it will be remembered, by T. B., bound together, to Zion College Library ; and he also gave Bishop Davenant's work to the library of Queen's College, Cambridge, where he had been educated.

When through the industry and research of the Rev. J. Ingle Dredge, of Buckland Brewer, the proof had reached this point, there was hardly any room for doubt that the persecuted Royalist of 1643 was the promoted Parliament-man of 1647. What were the chain of circumstances leading up to this culmination will probably never be known. The great fire of London in 1666 destroyed the evidence which could have been very interesting. The Books of Merchant Tailors are perfectly silent ; they seem to have accepted the appointment sullenly ; conjecture only is left us. It may be that the Parliament regretted having silenced a learned and honoured divine, and gave him preferment on a tacit understanding that he should keep clear of politics ; or it may be that the sharp whip of poverty compelled Bedford to ask for assistance, even when in so doing he had to put his pride in his pocket, in order to save wife and children from want. What the exact facts were we probably never shall

know ; but that beyond all question he was the identical Thomas Bedford who was smuggled away from Plymouth was at last settled by the discovery by Colonel Vivian, and Mr. E. H. W. Dunkin, of Blackheath, of the original will of Thomas Bedford in the Prerogative Court of Canterbury.

The will is dated 16th February, 1651, and was proved on the 15th June, 1653. In August, 1652, the Court of the Merchant Tailors' Company, suspicious and cold no longer, gave to their weak and sickly parson £10 for his supply and comfort ; and on the 10th November, 1652, Matthew Smallwood, afterwards Dean of Lichfield, was appointed to the Rectory of St. Martin, vacant by the death of Thomas Bedford ; so that he must have died in the month of September or October ; Wilson says Michaelmas, 1652. The Testator describing himself as of Martin Outwich, minister of God's word, begins with the usual pious preamble and declaration of faith, and gives to my deare wife Testance "that peece of land of myne in Plymouth ;" and after legacies to his sons John, James, and William, and his daughters Mary and Phebe, he proceeds, "To the Minister and Church Wardens of the New Church in Plymouth doe I bequeath tenne pounds to be bestowed upon a font stone or some other utensill for that Church. And this I doe as a testimony of my thankfullness to God for that legacy w^{ch} by the last will and Testament of myne e^{vr} honor^{ed} friend Mr. Robert Trelawny was bequeathed to me To the poore of this Parish of St. Martyn Outw^{ch} I bequeath forty shillings and forty shillings to the poore of Aderstone and tenne shillings to the poore of Marivall."

The passing references of the will trace the history of Bedford. Aderstone, where he had been schoolmaster from 1617 to 1631 ; Plymouth, where he had lived so long ; and, finally, the gift to him by his ever-honoured friend Robert Trelawny. A gift from a man of sterner stuff would be valued on that account all the more highly, and coming as it did exactly at the time when misfortune and oppression fell heaviest, would ever be remembered as the one gleam of light, the one kindly remembrance during that sad time.

From the isolated touches scattered here and there, it may be conjectured what manner of man the Bedford of St. Martin was. Broken probably in fortune and health, he had for subsistence to yield to the powers that were, and give perhaps an unwilling,

though not unfaithful, obedience to the Parliament. Kindly in disposition, he won the regard and personal esteem of those who at first were disposed to treat him with aversion, until at last he was loved by those upon whom he had been forced, and the Merchant Tailors' Company, who were visited with penalties, and treated sharply by the Commonwealth, sent his son William to St. John's College, Cambridge, and once and again provided help and assistance for his supply and comfort in failing health. In 1650 Mr. Dugard, the head master of Merchant Tailors' School, acting no doubt with the connivance of his Company, was ejected by the Parliament on the ground that he had "shown himself an enemy to the State by printing seditious and scandalous pamphlets, and were therefore unfit to have charge of the education of youth."¹ Dugard was bound over in £300 not to repeat the offence, and later his presses and paper were ordered to be destroyed.

Again, in August of the year following (1651) the Council of State wrote to the Lord Mayor that they had "become aware of the intention of certain persons to make a solemn funeral for Christopher Love, lately executed for high treason;" and the Lord Mayor was ordered "to command that Merchant Tailors' Hall be kept shut up, and to send for Winstanley and any others concerned therein, and command them to desist from any such enterprise as they will answer to the contrary at their peril."² But during all this time Bedford was pursuing his theological studies and editing Bishop Davenant's works, thus following a line which, without being untrue to his new masters, was not unfaithful to his old opinions and old friends; and when the last came he is found, after making a modest provision for wife and children, to look back to his Plymouth days, and provide for a small gift to Charles Church, which had been founded with his assistance, and that of his ever-honoured friend Robert Trelawny, and partly built under his own eye. This gift, it is a pleasure to think, is with us to this day; for lying on the table before me I am able, through the courtesy of Rev. George Frederick Head, the Vicar, to bring to your notice part of the silver communion plate of Charles; namely, a flagon with a cover 10½ inches high, on which is the inscription: "This belongs to Charles his Church of Plymouth, Thomas Bedford, sometimes Lecturer Donor 1662;" a small paten inscribed,

¹ *Cat. St. Pa. Dom.*, 1st February, 1650.

² *Cat. St. Pa. Dom.*, 25th August, 1651.

“Exdono Thomas (evidently altered from Thomæ) Bedford;” and a chalice with the legend, “Exdono Thomæ Bedford quondam Prælectoris Plimothiensis.”

The piece of land alluded to in the will it is impossible to localize. The descendants of Thomas Bedford are traced in the *History of Cornwall*,¹ by C. S. Gilbert, written 1820, and are Western men. John, his eldest son, mentioned in the will, became Rector of St. Gerrans in 1645, and was father of five sons—all clergymen in Devon and Cornwall; and John his son was from 1674 to 1738 Head Master of the Plymouth Grammar School, where he lived to the age of ninety, and where his talents and respectability of character caused him to be long remembered. In the lives of several scholars his name is recorded as their preceptor, with high respect for his learning and instructive skill. John Bedford, M.A., probably his son, and therefore the great grandson of our friend Thomas Bedford, was also Vicar of Charles from 1758 to 20th April, 1784, when he died, and was succeeded by Dr. Hawker. Several members of the family likewise entered the Royal Navy, and served their country with distinction, and their name is not unknown as Bedford and Fanshawe to this day. The female branches married into the families of Elford, Putt, Stephens, Willesford, and Woollcombe, names known in the West as synonyms for integrity and honour.

I have done little more in this paper than piece together scraps of information given me by valued friends, among whom I must place first the Rev. J. Ingle Dredge. To Col. Vivian and Mr. E. H. W. Dunkin I am deeply indebted; and last, not least, I have to return my thanks to the Rev. J. Bathurst Deane, the venerable rector of St. Helen, Bishopgate Street *cum* St. Martin's Outwich, Threadneedle Street; and to the Merchant Tailors' Company for permitting me to have access to their records.

¹ Vol. ii. p. 13.

WILL OF THOMAS BEDFORD.

Extracted from the Principal Registry of the Probate, Divorce, and Admiralty Division of the High Court of Justice :

“In the Prerogative Court of Canterbury

“In the Name of God Amen I Thomas Bedford of y^e Parish of Martin Outw^{ch} London in y^e County of Midd Minister of God’s Word being att this present in reasonable good health and pfect memory but growing into yeares and uncertaine how soone either by sicknes or any other accident I may be cutt of doe for the discharge of my duty and to prevent (as much as I can) all discontents in my family make this my last Will and Testament in manner and forme following My Spirit I recommend to God that gave itt trusting in the merritts of Jesus Christ the eternall sonne of God and him alone for the remission of all my sinnes and for the salvacon of my poore Soule My body I leave to Christian buriall in sure and certaine hope of Resurrecon to eternall life As dying in the pfession of the Holy Faith and truth w^{ch} I have preached to others in y^e course of my Ministry utterly disavowing and detesting all errors and heresies whatsoever whether of Baptists or Anabaptists of Arminians Socinians Antinomians or whatsoev^r is by any whomso^r taught and mayntayned contrary to the truth of God revealed in his Word As touching the porcon of goodes w^{ch} God hath graciously bestowed upon me I desire it may bee distributed according to this my Will and Testam^t To my deare wife Testance I give and bequeath that peece of land of myne in Plymouth dureing her life the same land after the death of my said wife I give and bequeath to my son John to whome alsoe I give and bequeath all myne *Appell* and Manuscripts To my twoe daughters Mary and Phebe I give and bequeath one hundred pounds a peece for their portion And alsoe to them and each of them I give twenty pounds a peece to bee paid att the baptizeing of their first child To my sonne James who hath had his porcon I give twenty shillings to buy hym a ryng To my sonne William I give and bequeath fifty pounds for his porcon and thirty pound I leave in the hand of my Executo^r towards his maintenance till he come to bee of full age To the Minister and Church Wardens of the New Church in Plymouth doe I bequeath tenne pounds to bee bestowed upon a font stone or some other utensill for that Church And

this I doe as a testimony of my thankfulness to God for that legacy w^{ch} by the last Will and Testament of myne ev^r honor^{ed} friend Mr. Robert Trelawny was bequeathed to me To the poore of this Parish of St. Martyn Outw^{ch} I bequeath forty shillings and forty shillings to the poore of Aderstone and tenne shillings to the poore of Marivall To my Brother Bedford and my brother Crau. ford to each of them one of the best bookes in my study and to each of their wives twenty shillings a peece to buy them a ringe To the three sisters Mrs. Elizabeth Mrs. Judith and Mrs. Jane the daughters of Mr. Nicholas Leate a peece of plate of foure pound price As touching that fifty pound bequeathed to me by Mr. John Young Merchant my Will is that upon the receipt thereof the tenth viz five pounds be given to the poore of Martyn Outw^{ch} and twenty pounds a peece to my sonne John and my sonne James they giveing caution to pay yearely forty shillings a peece to their mother dureing her widdowhood All the rest of my goods whatsoever doe I give and bequeath to my deare wife whom I also make the sole Executrix of this my Will and Testament In witnesse whereof I have sett to my hand and seale this present day the sixteenth of February in y^e yeare of our Lord one thousand six hundred fifty one

“THOMAS BEDFORD

L. S.

“Sealed signed published and declared by the said Tho. Bedford for and as his last Will and Testam^t in y^e presence of

NICHOLAS WYLD

& CHRISTOPHER TOWNSEND

“Notary Public

“This Will was proved att Westm^r the 15th day of June 1653 before the Judges for Probate of Wills and granting Adcons appointed by an Act of Parliament entituled An Act for Probate of Wills and granting Adcons by the Oath of Testance Bedford the Relict of the said deceased and sole Executrix named in the said Will to whom was granted Adcon of all and singuler the goods chells and debts of the said decea^d she being first sworne well and truly to administer the same.”

160 Brent

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J.K.

HERALDRY: ITS HISTORY AND USE.

ABSTRACT OF LECTURE BY MR. ARTHUR J. JEWERS, F.S.A.

(Read 18th January, 1883.)

AFTER referring to the general ignorance prevailing on the subject of Heraldry, and stating that he should not be able to do more than give a brief outline of its origin and growth, and a general idea of its leading laws, the lecturer spoke of the signs or symbols used from remote periods of antiquity by nations and clans, and traced their use from classic times down to the Norman Conquest, at which time the Bayeux tapestry shows clearly the devices used on shields and pennons, but also shows that then heraldry had not been reduced to a science. The absurdity of the claims to antiquity in heraldic matters was pointed out and illustrated, and the imaginative inventions of early writers exposed. Heraldry was defined as the science that treats of armorial ensigns depicted on shields, banners, &c., crests, mottoes, the marshalling of divers coats on one shield, the law of inheritance in coat armour, and other matters therewith appertaining.

It was not until long after regular and hereditary heraldic devices came into general use that crests began to be used. At first they were assumed by the great barons as an additional cognizance, being worn, as the name implies, on the top of the helmet, and this addition soon became general. There was a much greater laxity in their adoption than was tolerated in regard to coat armour, yet many families continued without this addition to their arms down to the middle of the sixteenth century, and later, when we find many grants of crests by the official heralds to persons already entitled to arms. A few families still continue unentitled to a crest, but there are so few it has become rather a distinction. A local example of this is the family of Rashleigh, of Menabilly, near Fowey, of which Sir J. Colman Rashleigh, Bart., represents one branch. Their arms are *Sa. a cross or, between, in the first quarter,*

a *Cornish Chough arg.*, beaked and legged *gu.*; in the second, a text *T.*; in the third and fourth, a crescent, all of the third. These arms may be seen in the parish churches of Fowey and Tywardreath. In the former church is a large canopied table tomb, with the recumbent effigy of Jonathan Rashleigh, of Menabilly, Esq., who died in May, 1675. Besides six smaller shields, there is at the top a large achievement, which is surmounted by a helmet and mantling, but no crest. Again, on the mural brass and hatchment of the late Mr. William Rashleigh, who died in 1871, the arms of Rashleigh impaling Stuart (Mr. Rashleigh having married the Honourable Catherine Stuart, eldest daughter of Robert Walter, 11th Lord Blantyre) are surmounted by a helmet without a crest. At Tywardreath is a monument and hatchment with Rashleigh impaling Hinxman of Ivychurch, and a tablet with Rashleigh impaling Pole. In no case is there a crest. At Luxulyan is a tablet for Sir John Colman Rashleigh, first Baronet of Prideaux, which has a shield, *quarterly, first and fourth, Rashleigh, second and third, Battie, impaling Williams.* These again without a crest.

The use of supporters is now confined to Peers, Knights of the Bath, and a very small number of untitled families, who use them by prescriptive right. Among the latter are the ancient local families of Carew of Haccombe, &c.; Pole of Shute, Treffry of Place, near Fowey. Carew, Baronets of Haccombe, &c., have two *heraldic antelopes, gules, horns and hoofs azure.* Carew of Crowcombe Court, and Carew Castle, &c., have, on the dexter, a *lion rampant sable, crowned or*; on the sinister an *antelope gu.*, horns and hoofs *az.* The same supporters are used by the Carews of Beddington. The Pole-Carews of Antony bear on the dexter an *antelope*, as Carew of Haccombe, and on the sinister the *gryphon* of Pole, they being descended in the male line from Sir John Pole, Bart., of Shute, whose supporters are on the dexter a *stag gu.*, horns and hoofs *or.*; sinister, a *gryphon az.*, armed and gorged with a coronet *or.* Treffry has for supporters on the dexter a *savage man, wreathed about the loins with leaves vert, his right hand grasping a thorn-tree torn up by the root all pr.*; sinister, a *woman, also wreathed about the loins with leaves vert, her left hand resting on a long bow, and standing in a quiver of arrows.*

Of late examples of arms on shield or surcoat, upon sepulchral monuments, we have many in Devonshire, among which may be mentioned that of Radulphus de Gorges at Tamerton Foliot.

In the course of some remarks upon some early rolls of arms, the following translation of a passage in the poem of the Siege of Carlaverock, A.D. 1300, relating to the family of Carew, was quoted—

“A gallant man, and of great fame,
Nichol de Karru, with him came,
Who oft had made his foemen yield
In thick defile and open field.
When fighting the wild Irish kerne,
His banner easy was to learn—
In yellow field, with angry scowl,
Three sable lions stalk and prowl.”

In referring to the contests that were at one period frequently entered into to preserve against infringement the right to certain coat armour, the case of Scrope and Grosvenor was mentioned. Three of the commissioners in the Scrope and Grosvenor controversy sat on the 16th June, 1386, at the house of the Carmelites in Plymouth. They were Lord Fitz Walter, Sir John Marmyon, and Sir John Kentwode. They called before them Sir Richard le Scrope, who appeared, and Sir Robert Grosvenor, or his proctor, who did not appear. They took the depositions of the Duke of Lancaster, and of sixty-nine other witnesses for the plaintiff, and certified the same by an instrument under their seal dated at Plymouth on the 26th of June, 1386. Imagine the brilliant scene in the narrow streets of our good old town and in the monastery—the tramp of steeds, the clank and dash of mailed knights, the flashing light as it glitters and glances from the burnished steel, and plays on the rich surcoats, embroidered with the heraldic ensigns of the wearers; while aloft silken banners enwrought with armorial devices in flowing colours slowly ripple and wave with the breeze as if rejoicing in the warm June sunshine, gently kissing their graceful folds. Add a sprinkling of townsfolk gazing open-mouthed at the unwonted stir, with here and there an ecclesiastic in his sombre habit hastening to discharge some duty of his office, or coming more leisurely to record his testimony before the Commissioners. These backed by the substantial masonry of the stately Friary and the quaint houses of the town, surely make a subject worthy the brush of the best artist, the pen of the most graphic writer. On the 12th July Sir John de Kentwode examined Sir John de Sully in his own church at Yerdeley, he being unable by reason of his advanced age to

travel, and the Earl of Devon in the manor-house belonging to him at Tiverton. The result is well known—the decision being that Scrope had proved his right, and this was confirmed on appeal to the king, and an alteration made which was less favourable to Sir Robert Grosvenor. An example of a contest as to the right to certain coat armour of more local interest is that of Gorges. Sir Theobald Russell married, first, Eleanor, daughter of Ralph de Gorges, and heir to her brother Ralph. Sir Theobald married, secondly, Eleanor, daughter and heir of John de la Tour of Berwick, Co. Dorset, from which marriage descends the present Duke of Bedford. Sir Theobald by his first wife Eleanor de Gorges had a son—Sir Theobald Russell—who assumed his mother's surname and the arms of Gorges, *Lozengy, or, and az.* This occasioned a dispute (21 Edward III.) between him and Warburton of Cheshire for bearing these arms, when the latter having established his antient right to the arms in the Court of the Earl Marshall (Henry Earl of Lancaster) Gorges had assigned to him *a chevron gules*. The latter may be seen now on the Gorges monument in St. Budeaux Church.

Illustrating differencing, the label was referred to, which is considered originally the difference of the heir apparent; but it was frequently retained as the ground for minor differences placed upon it, as in the Courtenay family, examples of which may be seen in Exeter Cathedral; and it has become an integral part of some coats, as that of Carminow of Cornwall. The label extending to the edges of the shield, with various distinctive charges upon it, is now used as the exclusive difference for younger sons of the sovereign.

Speaking of marshalling, the lecturer drew attention to the disputed point in the case of a lady who is heiress to her mother, also an heiress; but not her father, he having male issue by another marriage. Some have held that she should use her mother's arms with those of her father on a chief, and so transmit them to her children; others, that the lady's paternal coat should be borne on a canton; others again, that the father's should be omitted altogether, while sometimes the two have been quartered, as on the monument of the Carew family in the church of East Antony, where among the quarterings of one of the Carew shields we have Courtenay and Erchdekne quarterly—the lady being heiress to her mother Erchdekne only; and Arundell quarterly with Cosworth, the lady not

being heiress to her father Arundell, but only to her mother Cosworth ; while in another shield they are quartered as if each were heiress to both parents. This mode of quartering the two coats is decidedly objectionable, as causing confusion ; but to leave out the arms of the father altogether is surely worse still, as that does not represent the descent, and is misleading. This leaves the bearing the paternal coat of such an heiress, either on a chief or canton, to be considered, and of these the canton appears least likely to cause confusion.

In French armoury different quarterings, if they have such, is the only mark of distinction between various branches of the same family, and this is sometimes the case in English arms, from neglect of the proper mark of cadency. An instance of this occurs in the North and South Devon branches of a family, whose name will ever be held in honour and esteem by the members of the Plymouth Institution ; namely, the family of the late Mr. Henry Woolcombe, F.S.A. They both have the same coat of Woolcombe without difference in the first and fourth quarter ; the second quarter is also alike, the two lines being descended from two brothers, who married sisters, co-heirs of Pitt, of Yealmpton ; in the third quarters the South Devon line has Stokes, through the marriage of John Woolcombe, of Plympton St. Mary (married 8th May, 1730), with Mary, daughter and co-heiress of the Rev. John Stokes, M.A., vicar of Tamerton Foliot, and minister of Plympton St. Mary ; while the North Devon line has Morth, brought in by the marriage of John Woolcombe, of Ashbury, Sheriff of Devon in 1751, with Margery, daughter and heiress of Jeffrey Morth, of Talland.

POETRY DEFINED AND CLASSIFIED.

SYLLABUS OF A LECTURE BY MR. C. W. DYMOND, F.S.A., M. Inst. C. E.

(Read January 25th, 1883.)

WHAT is poetry? A perfect definition unattainable. Definitions proposed by Aristotle, Bacon, Shakspeare, Wordsworth, Reynolds, Shelley, Leigh Hunt, Dallas, Masson, and Ruskin. Comments on their opinions. Poetry may be variously expressed. General definition of poetry. Faculties to whose nobler degrees poetry appeals when imagination is the vitalizing force. The three great poetic fields. True poetry is deep and sympathetic. Attitude of the poet toward the universe. Functions of the imagination discussed. Fancy defined. Science the antithesis of poetry. Prosy works in verse. Naturalistic treatment contrasted with poetic. All poets sometimes unpoetic; instance from Homer. The verbal form of poetry the only one generally recognized. Restrained feeling a *conditio sine quâ non* of all poetry. Metrical and unmetrical poetry. Poetic form prescribed by nature of the subject, and genius of the language. Classification of poetic subjects, and their appropriate treatment. Mode of distinguishing prose from poetry.

WATER: ITS HEALTH ASPECTS.

SYLLABUS OF PAPER BY DR. AUGUSTUS H. BAMPTON.

(Read February 1st, 1883.)

INTRODUCTORY remarks. Importance of subject as affecting individuals and communities.

1. Water one of the purest substances in Nature. Composition, usefulness, distribution, varying forms, and many aspects. Rain: its sanitary work; a scavenger of the sky, and flusher of drains.

2. The all-pervading importance of water as a constituent of the human body; proportion and work.

3. Individual supply required. Should not be stinted in Plymouth.

4. Quality of water most important. Hard and soft water. Hard water not economical. Lead-poisoning through water. Water, and organic impurities. Epidemics of zymotic diseases.

5. Simple means of ascertaining wholesomeness of water. Cleanliness dependent upon an abundant supply of pure water, easily obtained. Concluding remarks.

JULIUS CÆSAR.

SYLLABUS OF LECTURE BY MR. W. J. SQUARE, F.R.C.S.

(Read February 8th, 1883.)

SHAKESPEARE'S drama founded upon Plutarch's biography. The Commoners of Rome: their fickleness. Cæsar: his character and murder. Brutus and Cassius: their characters described and contrasted. The temptation of Brutus by Cassius. Mark Antony: his character, orations, and influence with the people. The object of the play is to describe the struggles and downfall of Republicanism in Rome. Augustus Cæsar: his character, dissimulation, and assumption of imperial power. Shakespeare's recognition and appreciation of the moral sense, conscience.

QUERIES IN LOCAL TOPOGRAPHICAL BOTANY.

PART II.

BY MR. T. R. A. BRIGGS, F.L.S.

(Read February 15th, 1883.)

IN a former paper I endeavoured to show that the investigation of local phenomena may be undertaken with a view to the solution of scientific questions of the utmost importance and greatest magnitude; that evidence supplied by local facts may be used to support or weaken, possibly to prove or disprove, some of the startling theories of the age. Among the matters that I touched on were the differences between species and varieties, species competition, the respective influences of climate, lithology, and geology on plant distribution, and hybridism. These subjects were all suggested by facts belonging to certain species growing within the counties of Devon and Cornwall. The last plants under review were certain *Epilobia*, belonging of course to the order *Onagraceæ*. I proceed to say a little about two plants of the succeeding one of *Haloragaceæ*. They are *Myriophyllum spicatum*, L., and *M. alterniflorum*, D.C. The distribution of these two needs fuller working out. At present the probability is that some of the older records standing under the name of the former will have to be transferred to the latter, they having been made before the species were discriminated from one another. Both occur in the area of the *Flora of Plymouth*, but so far as I have seen very rarely produce flowers. Ponds and still waters are not numerous in this hilly part, and the rapidity of the rivers and streams generally in Devon and Cornwall seems to prevent the *Myriophylla* plants in them from bearing flowers. That it is this force of flow which hinders another hygrophilous species, *Ranunculus penicillatus*, Hiern., from producing flowers near Plymouth was well-nigh proved to me in the spring of 1880, by a few flowers making their appearance when the quantity of water in a stream where it occurs had become less

than usual. However, in another species, *R. Druoitii*, Schultz, a current of considerable force will not prevent flower-production and seed-bearing, as I have witnessed at Shalaford, near Plymouth. Might not botanists pursue an enquiry as to the relative ratio of water force and a capacity for flower-production in different species? To other than mathematical minds such a matter must appear difficult to investigate and work out; but surely as facts are presented to reason on, and as the age is one of enquiry, there should be men able and willing to take up such a question.

The recent careful attention to comparatively minute differences of form and characters in plants has had curious results, so far as some of our once universally-recognized "book species" are concerned. Of the past generation of botanists, every one knew, or thought he knew, *Callitriche verna*, L., the Water Starwort, given by Smith in his *English Flora* (1824) as growing "in ditches, ponds, and slow streams everywhere." At length, however, some of the so-called *verna* was found to accord exactly with the *platycarpa* of Continental botanists; some with the *hamulata*; and more recently the old species was further taxed to supply examples for a third segregate, *C. obtusangula*, Le Gall. All these "splits" of the original are certainly represented by specimens of the neighbourhood of Plymouth, and other portions of Devon and Cornwall; but a doubt still remains, and this is whether there is anything left of the old aggregate to stand for the restricted modern *C. verna*, of *Lon. Cat.*, ed. 7; *C. vernalis* it is called in *Eng. Bot.*, ed. 3. I inserted it in my *Flora of Plymouth* on faith of a specimen of a plant collected at Flete, and submitted to Dr. Boswell. He thought from the fruit it must be called *vernalis*; but added that he had never before seen it with spatulate leaves. It will be seen that even for this specimen some doubt attaches to the name, and consequently it remains for a local investigator to ascertain positively whether or not true modern *Callitriche verna* is a Devon and Cornwall species, and if so, what is its range. A critical botanist might certainly find much work in duly apportioning and correctly naming the *Callitriche* plants of the greater portion of the two counties.

Of the three *Ribes* species found in Devon and Cornwall probably not one is indigenous in Britain; but inasmuch as botanists of repute have thought otherwise, the circumstances should be noted under which quasi-wild bushes of the gooseberry and our

two currants are seen in various localities. Dr. Bromfield laboured to prove the gooseberry aboriginal in the Isle of Wight and elsewhere, but some of his reasonings on the matter seems to me to tell in the opposite direction.

Ribes rubrum, L., the Red Currant, is often to be seen in hedges, like the gooseberry; but is, I believe, no more of an aboriginal species than it, its appearance being due to the common cultivation of it in our fruit-gardens. *Ribes nigrum*, L., the Black Currant, is also occasionally, though more rarely, met with, this perhaps by reason of its fruit being less relished by birds than that of the other. Minute differences have been stated to exist between the garden and the wild red currant bushes. "It is to be remarked," says Dr. Bromfield, "that the flowers of the wild red currant are, in this island (Isle of Wight) at least, always more or less tinged with reddish-brown, whilst those of the cultivated variety are mostly, if not always, entirely destitute of colour." So far as my own observations have gone, such distinction cannot be established; nor does that of more hairy leaves for the wild plant given by Dr. Boswell in *Eng. Bot.*, ed. 3, avail as a mark for separation.

The larva of the insect *Sesia Tipuliformis*, Currant Clear-wing Moth, is sometimes very injurious to bushes of both the red and black currant in gardens about Plymouth, as elsewhere in England, through its forming channels in and feeding on the pith of the branches. As its attacks seem to be confined to these shrubs, the question as to their indigenous character necessarily belongs to it also; that is, if its habit in the matter of food has remained uniform for a succession of ages. It is very interesting to see the efforts that both the Blue Titmouse and the Coal Tit make to extract these larvæ from the centre of the stems of currant bushes growing in the garden of the house where I write this. By some unaccountable means, which we may conjecture to be either sound or smell, the birds become aware of the presence of the hidden insects, and make repeated, though sometimes unsuccessful, efforts to pierce through their woody envelopes, and get at them. In so doing they form light-coloured sections on the currant stems by abraising the outer bark in broad rings. These marks form a sure guide to the place of a hidden larva, and show a marvellous instinct in the birds, which tells them of the presence and position of an insect entirely hidden from their sight. The gooseberry and red currant spring

up very readily from self-sown or bird-sown seed, as does also frequently the North American species, *Ribes sanguineum*. This last, although introduced so comparatively recently as 1826, has become one of the commonest of cultivated flowering shrubs, and proves a great adornment of our gardens in early spring.

The local *habitat* of *Tillæa muscosa* is for the most part soil formed by the disintegration and decomposition of Devonian Slate, mixed probably with a small amount of recent vegetable mould, the decayed remains of minute *Musci*. It is too small a species to exist amongst dense vegetation, even if only a few inches in height, and consequently must be restricted to spots bare of, or unsuited to, most other phanerogamous species. In the Plym valley the cropping down by rabbits of some of the vegetation around the spots where it occurs may be the means of keeping an additional amount of surface open to it. Bearing in mind the great fact of species competition, enquiries and investigations respecting the occurrence of this humble little annual in the Plym valley are fraught with interest. The differences in size amongst the individual plants show that the least development is attained by them when the stratum of soil in which they grow is of the scantiest and driest nature, and that increased luxuriance is in relative proportion to an increased depth of earth and supply of moisture. But as the soil deepens so does it become increasingly possible for species larger than the little *Tillæa* to exist, with the result of an unequal competition between the great and the small. It is a positive certainty that the spots where we find individual plants of various kinds are often not those best adapted to them as species. See a diminutive bush of *Salix cinerea* growing from the crevice of a dry limestone wall. We know it would have grown ten times as fast had the down-appendaged seed from which it sprang been blown, not into the wall, but to an unoccupied spot on the damp side of the ditch below. Smith in his interesting *English Flora* locates the *Tillæa* "on the most barren sandy heaths," and both in the east of England and on the Continent it seems to affect such spots. A country with a very gradually rising temperature in spring is probably best adapted to it, as any sudden occurrence of unusual heat or drought is liable to burn it up in its arid *habitats* before the production of much seed—a casualty which sometimes happens to it even in the damp climate of Devon. If it be granted that species competition is the force most powerful in restricting the *Tillæa* to

the barren spots it occupies in the Plym valley, we only get at something like an answer to one query connected with its local distribution. We have still to ask, How comes it to be limited to spots at or within half a mile of the quarries? It is not now known elsewhere in Devon, neither in Cornwall. So small and insignificant a species, of no known use, would not have been designedly brought to the quarries or their neighbourhood, neither is it very likely to have been so accidentally, taking into account its absence from a vast extent of country around. Possibly in it we have a species, anciently of more extended distribution in this part of England, now driven to a very circumscribed area by competitors better suited to flourish under surrounding conditions—an area where violent competition is impossible from the fact that few other species could exist.

In the *London Catalogue of British Plants* both the typical *Sedum reflexum*, L., and the var. *albescens* are inserted; but the names appear in italic letters, to mark non-acceptance or suspicion of them, on the part of the author, as indigenous plants. However, there is good ground for considering the *albescens* a true native of the neighbourhood of Torquay, where it appears associated with *Helianthemum polifolium*, Pers., and some other rare and striking species. The Rev. W. Moyle Rogers speaks of it as growing "all round Torbay in great quantity," and, moreover, observes, "The extraordinary abundance of the Stonecrop at Berry Head, and on all rocky places near Torquay, is so remarkable that I do not see how its claim to be considered a native plant can be reasonably questioned." Mr. Stewart in his *Flora of Torquay* has most strangely ignored this *Sedum* altogether. Mr. J. G. Baker in his account of the "*Sedums* of the *rupestre* group in the *Gardener's Chronicle*" accepts it as an English species by reason of its occurrence on dry banks at Mildenhall, in Suffolk, and "on rocks at Babbacombe, near Torquay." Its precise range in the country about Torquay should be ascertained, and it should also be sought for in other warm portions of South Devon, especially as there is a possibility it may have been mistaken at some places for the typical *S. reflexum*. This, I think, naturalized *only* in the spots where I have hitherto found it in Devon and Cornwall; so whilst I would let the name "*reflexum*" still stand in the *London Catalogue* in italic letters, I would change that of var. b. "*albescens*" into ordinary type.

The interesting *Cotyledon Umbilicus*, L., a plant delighting in a cool and moist climate, is wonderfully abundant and luxuriant in our two south-western counties. Its juice formerly had medicinal properties attributed to it, and even so recently as 1849 it was recommended for epilepsy by a writer in the *London Medical Journal*. Its having been prescribed for such a complaint at the date given is a matter of surprise to me, and taken in conjunction with what follows, in the *Flora Vectensis*, seems rather curious. "None of the old authors I have consulted," says Dr. Bromfield, "ascribe any efficacy in this complaint to the *Cotyledon*, the use of which was first communicated to the public in an old number of a magazine, and said to be the contribution of the celebrated John Wesley." This statement suggests an application to *Notes and Queries* for the title and number of the magazine. I remember to have seen, when a little boy, its round juicy leaves, locally called "Penny Pies," gathered for steeping in vinegar to serve as an application to corns or bunions. Are any medicinal properties still attributed to this plant, and to the allied *Sempervivum tectorum*, L., the Houseleek, in this part of the country?

Important questions as to species distribution arise from the ranges of many of the *Umbelliferæ*. With one or two exceptions all those that occur in Devon and Cornwall possess differences so essential as to preclude critical questions of species separation or combination. It is to a large extent the same with the British representatives of the Order as a whole. We find in it *many genera*, with, as a rule, *few species*; whilst the extremely *limited ranges*, or *local occurrence* of the latter, are noticeable features. In the case of *Eryngium campestre*, L., we find a species occupying in the whole area of Devon and Cornwall only a few yards of old limestone pasture and rock, where, however, it has a recorded history of more than two hundred years, and has probably existed for ages. The resistance it offers at the present day to opposing influences arising from the proximity of its habitat, near Stonehouse, to three large and increasing towns, and the pertinacity with which it keeps its place among the vegetation of a much-frequented spot, weigh, with other considerations, in the assigning it the position of a native species. That it is indigenous anywhere in Britain has been questioned, probably by reason of its paucity, and the knowledge that, of its half dozen stations, one or two in the northern part of the kingdom are, or have been, ballast hills, and so

spots to which it is nearly certain to have been brought from the Continent. What changes have taken place around its local station since the day, July 7th, 1662, when one of the greatest English naturalists, John Ray, a man as good too as he was great, with his companion, Sir Francis Willughby, found it and the "*Erythrodanum*" or *Rubia peregrina*, L., in returning from their tour in Cornwall. Where they found them the two plants exist still. Ray, in describing the appearance of the neighbourhood, does speak of *some* objects that are yet familiar ones; but how different must the face of the country generally have appeared 220 years ago! He had a sight of Mount Edgcumbe, as we have, then in his estimation "a brave house and well situate, belonging to Mr. Edgcumbe, a gentleman of great estate." He and Willughby had too "a view of the little island in the mouth of the river in which" was "a good fort." Besides were "three other castles near the entrance of the haven or Key of Plymouth on the west side of the town." Ray considered it "a great and rich town, inferior in trade, riches, and bigness to none in the west except Bristol," yet "with no fair and uniform streets in it," but "two churches, one half built." It altogether made "a very fair show at a distance as you" went "to Ouston; a good large town on the harbour, a mile to the east." The presence of *Eryngium campestre* tells us of a past immeasurably more distant, possibly of a period when there was no English Channel, but a continuity of land between France and the English shore; for the species is a common one in Normandy and other parts of France. Its appearance in Kent as well as in our neighbourhood adds weight to the conjecture.

Helosciadium inundatum, L., affords an example of a species of very local occurrence. It grows in the south-east of Devon, also near Torquay and Kingsbridge, not, if absence of records are to be trusted, to appear again until we get to the far south-west of Cornwall. One would have supposed the bog-pits of Dartmoor would have produced it, especially as it is frequent in Ireland. On the other hand, in *Chærophyllum temulum*, L., we see probably the most abundant umbelliferous plant in Devon and Cornwall, but this in Ireland is "very rare."

In *Sison Amomum*, L., we have a species fairly general in low-lying and warm parts of South Devon until we approach Plymouth, where it becomes local, and further west, in Cornwall, extremely rare. This does not reach Ireland. At one time Watson felt dis-

posed to question its being a native of England; but it is most certainly indigenous in many places in Devon. A most local plant of the *Umbelliferae* is *Trinia vulgaris*, D.C., found in Devon at Berry Head, and elsewhere in the United Kingdom only on St. Vincent's Rocks, Gloucester; and at Uphill and Worle Hill in Somerset. In this we witness a diœcious and probably biennial species maintaining its existence at certain circumscribed spots with a persistence like that of the monœcious and perennial *Eryngium campestre*, L., at its station in our immediate neighbourhood. I speak of the *Trinia* as *probably* biennial, as whilst the respective authors of the *Student's Flora* and *English Botany*, ed. 3, state it to be so, those of the *Handbook of the British Flora* and of the *Manual of British Botany* call it perennial. Here we find authors of the highest authority divided in opinion on a point that could soon be settled by original observation and experiment. It is a species of southern and western Europe, and in our moist climate occurs only in dry warm spots. In the character of the situation it affects it contrasts most remarkably with *Carum verticillatum*, Koch., a species of damp marshes and bogs. In the neighbourhood of Plymouth this is only known to occur in one place situated in the parish of Plympton St. Mary, and not elsewhere in South Devon, though in some parts of North Devon and a neighbouring portion of East Cornwall it is in plenty, as is likewise the case in some parts of Wales and Ireland, and in Western Scotland. On the Continent it preserves a western distribution also, occurring from the Spanish Peninsula to Belgium. Probably the dry cold of central Europe and the more parching heat of its summers would not suit this *Carum*; but we cannot suppose that the climatal conditions of some places where it is not to be seen, West Cornwall for instance, would be unsuited to it. I have no doubt that something beyond climate, soil, and species competition must have worked to bring about the present remarkable and seemingly arbitrary ranges of many of our *Umbelliferae*. The age of a particular geological formation has possibly, in certain cases, something to do with the presence of a species on it; more perhaps than the chemical elements of its rocks, or even their lithological composition. I will give here in a translation some admirable remarks by De Candolle, suggested by facts seen at present in species distribution. "Certain species," says he, "grow in one region, and are absent from another, where they could perfectly live under

existing conditions. I mean to say that if you were to transplant them they would answer there not only in gardens, but in the open country, where they would become wild. It seems as if this would be the case with many plants, and that they would naturalize themselves readily did not the pre-existing species of every country offer too great an obstacle to the spread of new ones by their roots, shade, and the number of their seeds stored up in the ground. Undoubtedly the actual separation of continents and absence of means of transport have often prevented species extension; but it is also clear that the primitive position, or at least ancient position of species, is a condition dominant, apart from existing conditions of climate and of separation or contiguity of continents." In the course of these remarks we find their learned and thoughtful author incidentally recognising a species competition about four years before it was brought forward in such a prominent manner by Darwin in connection with the natural selection theory.

The successful action of cultivation in converting some of the *Umbelliferae* into valuable esculents makes one feel surprised that *Bunium flexuosum*, With., the Earth Nut, has not been removed into gardens, and improved by man. It and the extremely local *Carum Bulbocastanum*, Koch., furnish in their natural condition, by their large tubers, a substance more suitable for his food than that supplied by any other British species when unimproved, though among them are the Carrot, Parsnip, and Celery. The tubers of the *Bunium flexuosum*, locally called "Pig Nuts," are sometimes sought for and eaten by our country children. They cause a slight sensation of heat in the throat when chewed, but otherwise are not unpalatable in the raw state, though few probably would go so far as Withering does, when he says they, "either raw, boiled, or roasted, are little inferior to chestnuts, and would be an agreeable addition to our winter desserts." Do any records exist of experiments on this plant with a view to its improvement by cultivation and artificial selection?

Pimpinella magna, L., affords a remarkable instance of what appears arbitrary range in Devon and Cornwall, like some species of which I have already spoken. Around the town of Plymouth it is a very abundant species, so that literally cartloads might be collected in July and August in the parishes of Egg Buckland and Plympton St. Mary; but proceeding in a northerly direction it becomes uncommon between Tamerton Foliot and Buckland Mona-

chorum, and I have not met with it in any part of Devon north of this latter parish. East of Plymouth it is common on to at least the portion of the Erme basin lying south of Ivybridge; but neither the Rev. W. Moyle Rogers nor I have ever been able to find a single plant of it within the basins of the rivers Dart and Teign. Across the Tamar, and so in East Cornwall, it occurs in certain spots in the parishes of Maker, Rame, Antony, St. Johns, and St. Stephens, also in the grounds at Pentillie; but beyond these parts I have never come across it in the whole county of Cornwall, though Watson does give it as a West Cornwall species on the authority of Dr. Oliver. It is unrecorded for North Devon and the whole county of Somerset, but reappears in many places in the kingdom, reaching Norfolk and West Perth, so that climate cannot have anything to do with its circumscribed range in the south-west. In the district around Plymouth it seems an increasing rather than decreasing species. It seeds abundantly, and has a remarkable power of quickly sending up flower stems when the earlier ones are cut off by the hedger's hook; these in mild seasons will sometimes be in flower so late as November or December. It might be yet more plentiful with us if a small lepidopterous larva did not form a canopy of the umbels, by drawing their unopened flower-buds together with silky threads, to find within a dwelling and supply of food at the same time. Notwithstanding the great abundance of the plant around Plymouth, it presents very little variation here in leaves, &c., though Continental authors speak of a variety with lanceolate leaf segments. It is different with regard to the other species, *Pimpinella saxifraga*, L., which has leaflets varying from broadly ovate in some plants, to once or twice pinnate, with very narrow lobes, in others. Still it is always easy to separate its forms from *Pimpinella magna*.

Sium angustifolium, L., though said to be "generally distributed in England," is absent from a very large portion of Devon, and perhaps the whole of Cornwall.

A very minute annual species of the Order, *Bupleurum aristatum*, Bartl., grows sparingly on limestone at Torquay and Babbacombe. That neighbourhood was alone supposed to produce it in the United Kingdom, apart from the Channel Islands, until the year 1860, when it was discovered at Cow Gap, near Eastbourne. Growing at Torquay, how much more probable geographically would have seemed an occurrence of it on the limestone about the Plymouth

Sound to its appearance in the distant county of Sussex. Probably a great part of the kingdom would be too cold to suit it well, but this does not supply a sufficient reason for its growing only in two widely separated localities on the southern coast.

The genus *Ænanthe* adds some remarkable facts of species distribution in Devon and Cornwall. The occurrence of *Æ. pimpinelloides*, L., on the Plymouth Hoe, furnished the reason for its being accounted Devonian by Watson in *Cybele Britannica* (iii. 422), on faith of specimens sent thence by Mr. F. H. Goulding. Mr. Keys, in his *Devon and Cornwall Flora*, says Mr. Charles Harper first directed his (Mr. Keys's) attention to it so long ago as 1847, at which time there were several roots; but that in 1852 he could only find one. I am glad, however, to say that so recently as the spring of last year I noticed six or seven patches; some of the plants having stems in bud among the leaves, though much stunted and injured, as might be expected in so much-frequented a place. This species is otherwise unknown about Plymouth, though "frequent down the main valley of the Teign from Christow to Newton Abbot" (Rev. W. Moyle Rogers, *Flora Teign Basin*, p. 14), and found elsewhere in the county by the south-east coast. From Plymouth westward we find no record of it until we get to the Lizard and Land's End districts, where it reappears. In the counties of Devon and Cornwall alone it thus occurs on rocks of three or four different formations, notwithstanding its stations are so widely separated. A plain proof that species-ranges as they come before us at present must have been brought about by influences additional to those of soil and climate.

Ænanthe fistulosa, L., seems rarer than *Æ. pimpinelloides* in Devon and Cornwall. Some years ago, through the kindness of a friend, I received fresh specimens from Slapton Ley, a large pool occasionally connected with the sea between Kingsbridge and Dartmouth. I have seen it growing in St. Mary's, Scilly, where it was discovered by Mr. Townsend. Its paucity in the extreme south-west of England may be partly accounted for by the fact of there being comparatively few still waters and stagnant ditches in this hilly area.

In the neighbourhood of Plymouth *Æ. Lachenalii*, Gmelin, is to be seen only about some tidal waters and inlets connected with the Tamar and Notter estuaries, being absent from the outlets of the Plym, Yealm, and Erme. Whether we take a comparatively small

area, or the whole counties of Devon and Cornwall, it seems we must find a local or peculiar range attaching to some or other of the *Umbelliferae*, and this independently of existing conditions.

Forty years ago the species of the genus *Ænanthe* were not all clearly discriminated by British botanists, so some of the older records need verification, and a botanist would be doing a useful work in carefully tracing out the respective ranges, and verifying the older statements of occurrence, in Devon and Cornwall, of the three species I have mentioned, and ascertaining also if *Æ. silaifolia*, Bieh., and *Æ. Phellandrium*, Lam., do really occur anywhere in Devon.

Of late years the anciently-reputed poisonous properties of several of the *Umbelliferae* have been questioned, but that certain species are of really a deadly nature does not admit of doubt. The violently poisonous nature of the tuberous roots of *Ænanthe crocata*, L., Hemlock Water Dropwort, was clearly proved in our neighbourhood in March, 1881, by the death of Georgio Giovanni, a Greek sailor, of the brig *Orpheus*, of Syra, through eating of them. The vessel having put in at Plymouth, he came ashore with others of the crew to obtain water at Jennycliff, and when there pulled from the cliff bank some of this *Ænanthe*, and ate one and a half of its tubers. About one hour and a half afterwards he became unwell, and was subsequently taken to the South Devon and East Cornwall Hospital, where he died of paralysis of the heart and muscles in about three hours and a half after being taken ill. Two of his companions, who had also eaten of the plant, became alarmingly ill, but recovered.

The extreme limit of *Silene pratensis*, L., in a south-west direction, should be carefully sought out. It occurs in several parts of the Teign Basin, but has not been met with in the south-western portion of Devon, nor anywhere in Cornwall. Two of the three British species of *Torilis* maintain the characteristic of local distribution belonging to so many of the *Umbelliferae*. *Torilis infesta*, Spreng., does not reach the western parts of Devon, and is unknown in Cornwall. In it we find the remarkable feature of limited range shown in an annual and colonist species, seemingly well adapted for wide diffusion by reason of having fruit with "spreading asperous prickles hooked at the tip." The range of *Torilis nodosa*, Gaert., seems in large measure dependent on climatal or soil conditions, conducing to warmth and dryness.

Chærophyllum Anthriscus seems sparsely and irregularly dotted about Devon and Cornwall, with a submaritime tendency, though found at Trusham, miles from salt water, like *Lotus angustissimus*.

The leaves of *Crithmum maritimum*, L., the Samphire, are well known to have been used for pickling so long ago as 300 years. We have England's great dramatist, in one of his most celebrated works, bearing witness to the fact of their being in his time what the utilitarians of our own would call a marketable article. Circumstances, however, required his Samphire gatherer to be introduced carrying on his "dreadful trade" on the white cliffs of Dover, not on the red or blue cliffs of Devon or Cornwall. Are there any records of this plant having ever been collected to any great extent for edible purposes in our two counties? I am not aware of its being used anywhere here at present, but it is quite possible it may be in some parts.

By means of the Carrot, *Daucus Carota*, L., and Parsnip, *Pastinaca sativa*, L., we may form some estimate of the power of artificial conditions and methodical selection to change the appearance and size of plants after a cultivation of one or two thousand years, or more than two thousand for the former. Of these species we have what are undoubtedly both the *wild states* and the *forms obtained after and by means of* this long process of *cultivation*: the former in our pastures and by roadsides; the latter in our gardens. In the case of some plants comparisons between the wild and the cultivated states, or what seem the latter, are unsatisfactory from a difficulty of ascertaining distinctly what are truly wild examples apart from degenerated and semi-wild descendants of cultivated ones. The Carrot species, besides showing us the variations that have arisen in cultivation, and have accumulated through a long process of artificial selection, brings before us other variations seemingly naturally induced by, or developed under, maritime conditions, and these in some individual plants of so marked a character as to make them constitute a variety—the *a. gummifer* of *London Catalogue*, ed. 7, or *D. maritimus* of some authors. This was pronounced surely a species by Withering and Smith, and is still so considered by Professor Babington, as we may see by turning to the last edition of his well-known *Manual*. The younger Withering, in the seventh edition of his father's *Arrangement of British Plants*, calls it "Cornish Coast Carrot," and says, "Dr. Withering first gathered this plant on the western coast of

Cornwall, and at his request the Rev. J. Thompson paid particular attention to it." (Vol. ii. p. 369.) Dawson Turner wrote of it ; "Unless it suffer very material alteration from culture, which I understand it does not, it appears to me to have as clear a right to be considered a species as any one in our Flora." As opposed to this view take the following statements, based on actual experiment, from the exact and critical Watson : "Seeds (of *gummifer*) sown in a Surrey garden two different years in each case produced *D. Carota* only ; one set of the seeds brought by myself from the coast of Jersey, the others given to me by Dr. Boswell Syme. Besides this direct change, intermediate forms occur on the coast ; while on inland examples of *Carota*, growing on dry exposed ground, the umbel occasionally remains perfectly convex in fruit." C.C.B. 520. Dr. Boswell, after speaking of marks of dissimilarity between ordinary *Carota* and *gummifer*, says, "These differences, however, though they apply to the Cornish and Devon plants, do not to those of the Kentish coast, which are quite intermediate between the Cornish and the inland forms, passing insensibly into the latter, and yet approaching too closely to var. *a*" (the type) "to be separated from it." My own experience in our neighbourhood, however, has been very similar to that of Dr. Boswell on the coast of Kent ; for I have sometimes been at a loss to understand where *Daucus Carota genuina* ends and *D. gummifer* begins. We often find specimens of other species besides the Carrot showing a tendency to produce unusually thick and fleshy leaves when growing on maritime cliffs exposed to sea gales, and we can imagine such leaves to be less liable to become bruised or scorched by fierce winds and saline influences than those of thinner or more ordinary texture. Advocates of natural selection views might allege, certainly with probability, an evolution of thick-leaved individuals from their being best suited to the spots. The proved reversion, however, of this thick-leaved maritime variety to the ordinary form in only one generation seems to show that in the Carrot at least there is no passage by inheritance of peculiar characters away from the conditions under which they arose.

Careful observation of the circumstances under which two other species of the *Umbelliferae*, *Foeniculum vulgare*, Gaert., the Common Fennel, and *Smyrniolum Olusatrum*, L., Alexanders, are found at various spots are desirable, in order to the arriving at conclusions as to their position in the flora as indigenous species or otherwise.

The counties of Devon and Cornwall are well situated for the investigation of this point. Bentham writes of the *Smyrniun* as "probably really indigenous in several of the maritime counties of southern England and Ireland;" and Babington puts no mark of suspicion against it in his *Manual*. I have, however, so generally found it located close to villages and old houses, and moreover so often associated with certainly denizen and notoriously alien species, that I must differ from these high authorities, so far as Devon and Cornwall are concerned. It is, however, completely naturalized, renewing itself abundantly by seed. De Candolle says that of all the Umbelliferæ serving for vegetables this was one of the commonest in gardens for about fifteen centuries, but now it is discarded. We can trace its culture from its commencement to its end. "At the conclusion of the eighteenth century a knowledge of its having been formerly cultivated remained; thenceforward," says he, "both English and French horticulturists speak of it no more." —*Origin des Plantes Cultivées*, 72, 73. I consider the Fennel also a naturalized, not indigenous, plant.

Common names, former uses, and early beliefs attached to such species as the *Smyrniun* are of especial value to botanists. Philologists, and those studying the works of the older writers, may often help us to arrive at just conclusions as to the real position of a plant in a country or district, as indigenous or otherwise. Some species have also long and interesting histories belonging to them in the form of notices of first discovery and subsequent record through a series of years. In our part of the country we find the names of many botanists and men of science and learning for several past generations linked with such a history of one of our local species, *Physospermum cornubiense*, D.C. It is known in the United Kingdom in Devon and Cornwall only, and here occupies comparatively a very inconsiderable area. Through the kindness and untiring research of the Rev. W. W. Newbould, I am enabled to give many interesting particulars as to how this plant became added to the British flora. Mr. Newbould has gathered information for me from books and herbaria at the British Museum, the Linnæan Society's Rooms, &c. The earliest published records of the plant as British are by Petiver in his *Herbaria Britannica Catalogus*, and by Dillenius in his edition, the 3rd, of Ray's *Synopsis*, the latter published in 1724. Petiver's text has the name "*Saxifraga Cornubiæ*, rarò," and a reference to a plate. This, Mr. Newbould

informs me, is a fair but small figure of the plant, with "Cornwall Saxifrage" given as the name, and the word "Cornwall" added as its locality. Dillenius in the *Synopsis* has a reference under his name of "*Smyrnum tenuifolium nostras*" to Ray's *Historiæ Plantarum*, iii., p. 254; but this work does not give it as British. The remainder of Dillenius's synonyms and references are as follow: *Saxifraga hircina maxima Cornubiensis*, *D. Stevens*; *Tragoselinum maximum Cornubiense*, *D. Buddle*. Then follows a reference to Petiver's work, and finally we have these words in connection with the plate he himself gives: "Accurationem quam *Petiveri* hujus figuram vid. Tab. viii." The engraving is very characteristic of the plant, and admirable as regards details, considering the small space the artist had at his command. How did Dillenius and Petiver obtain the knowledge of the occurrence of the plant in Cornwall? A reference by Mr. Newbould both to the *MS. Flora* of the Rev. Adam Buddle, and also to his *Herbarium*, forming respectively a portion of the Sloane MS. collections and Sloane Herbarium in the British Museum, enables me to give the following particulars. In the Herbarium, now at Cromwell Road, is a specimen of the *Physo-spermum* from Cornwall; seemingly the original of the engraving by Dillenius. On the same paper as the specimen is the following: "*Tragoselinum maximum cornubiense umbellâ candidâ*. Buddle a D. Stevens e Cornubia missum." In the *MS. Flora* the plant has a short description; and appended is the note: "This description is from a dry'd specimen," also "a D. Stevens ad D. Stone street e Cornubia missa." This explains why the name Stevens appears in connection with the notice of this plant by Dillenius in the *Synopsis*. D. is simply the initial letter of "dominus" or Mr. The Stevens here named was no doubt the Rev. Lewis Stevens, Vicar of Menheniot from 1685-1724, where he died in the latter year, or the commencement of the following one. He was a scholar and man of science, carrying on a correspondence with Wm. Sherard and other naturalists of his day, and assisting them by the transmission of specimens of natural history from Cornwall. In this work his name comes before us associated with that of Walter Moyle, of Bake. We find Sherard writing as follows to Moyle from London in December, 1719: "I had formerly the honour to know the Rev. Mr. Stephens at Oxford; and if he be living, beg the favour of you to know how I may write to him. The *Fuci* and *Musci* communicated by your good self and him to

Mr. Bobart I am not perfect master of, and should be glad of information about some of them, in order to a new edition of Mr. Ray's *Synopsis*."

Mr. Moyle replying, says, "I communicated your letter to my good friend and neighbour Mr. Stephens, who is still alive and hearty. He desired me to present you his humble service, and to assure you that he will very soon send you a complete collection of all the submarina plants in Cornwall which he knows, and that you may command his service in anything." In another letter of Moyle's to Sherard he speaks of an intention of Stephens's to go to "Loo Island to get 'Fuci' for him." This Rev. Lewis Stephens was the father of the Rev. Wm. Stephens, Vicar of St. Andrew's Church, Plymouth, from October 1723 to 1731, a man of considerable learning and an author. Boase and Courtney inform us, in the *Bibliotheca Cornubiensis*, that the father drew up an account or list of "Rare plants in the county of Cornwall, MS. not now known." Residing at Menheniot, he would be near spots where the *Physospermum* still grows, though I know of no actual record of it for that parish. I have, however, myself seen it in plenty in some parts of the adjoining one on the east, Quethiock. After Stephens's discovery of it, which of course added it to the British list, no one seems to have gathered it for a long period of years, and the precise locality where he found it becoming forgotten, Pulteney, writing about half a century afterwards, noted down the plant as "lost." In Withering's *Botanical Arrangement of British Plants*, ed. 2 of the date 1787, we find the following statement by Dr. Stokes: "Only one specimen is known to exist. It has been searched for in vain by many industrious botanists, which has induced some to believe that it is now extinct." (Vol. i. p. 290.) In the following year, however, it was rediscovered; for we have Sir James, then Dr. Smith writing of it as follows: "Grows in thickets and hedges in Cornwall. This very rare plant was first found, since the days of Buddle, by Mr. Pennington in 1788. I am obliged to my very good friend Sir Thos. Cullum, Bart., for a specimen gathered by himself near Bodmin in that county in 1789, from which, assisted by a living specimen communicated from the garden of the British Museum by Mr. Dickson, the present figure has been delineated." The reference here is to *Icones Picta Pl. Rarior.* (fas. 2, table ii. 1790-93). The figure is a beautiful folio one. Writing again of it in 1800 for *English Botany*, Smith ex-

pressed his belief that the plant was entirely confined to Cornwall. "It is remarkable," says he, "that this plant has never been found in any part of the world except Cornwall, where a Mr. Stephens discovered it early in the present century." He states the figure E. B., table 683, to have been drawn from a plant gathered by Dawson Turner and Mr. Sowerby near Bodmin. In the seventh edition of Withering's work there is a fuller account of Mr. Pennington's finding it. We are informed he met with it in a field that had been ploughed after lying fallow for ages. Withering says, being himself at Bodmin in June, 1793, "I applied to Mr. Gilbert, the proprietor of the land, who very obligingly sent a person to conduct me to the field in which Mr. Pennington had rediscovered the plant. The field is more than a mile north of Bodmin; the furze is again growing upon it; but not a single plant of the *Ligusticum* (*Physospermum*) was to be found. Dr. Hall favoured me with his company on this occasion, and we searched the surrounding fields and hedgerows to no purpose. At length, in a field about half a mile further from Bodmin, on ground sloping to a valley facing to the west, and nearly at the bottom of the slope, we discovered a few plants amongst the furze. Mr. Stackhouse informs me he has since observed it plentifully at Hungerhill, in the parish of Cardynham." (p. 377.) Draw Wood, Bradoc, was added to its list of stations in the *Botanist's Guide*, of the date 1805, on the authority of the younger Edward Forster. Jones, in his *Botanical Tour*, published in 1820, says, "Bodmin was principally interesting to us" (Mr. Anderson was with him) "in consequence of that rare plant *Ligusticum cornubiense* being found wild only in its neighbourhood. The Rev. Mr. Gilbert, to whom we had a letter of introduction, very politely sent his servant to conduct us to the spot. We found the plant growing very abundantly two miles north-west of Bodmin, on Hare Down, half a mile above Dunmere river. Having obtained some specimens, we determined to pass over to St. Neots." (p. 37.) About 1840 the area of the plant was found to be considerably larger than had been supposed, by the Rev. W. S. Hore, at one period an energetic member of our Devon and Cornwall Natural History Society, discovering it in an oak coppice near Tavistock, about a quarter of a mile from Newbridge, on the Tamar. This added it to the Devon list. In 1852 Joseph Woods, the author of the well-known, though now scarce and dear, *Tourist's Flora*, found it in the upper

part of the wood near Calstock Church, a neighbourhood in which I have myself seen it; the last time so recently as 1880. In 1868 the writer of an article in *Journal of Royal Institution of Cornwall* (vol. iii. 49-51) stated that it abounds in every bushy field in a direct line between Halton Quay on the Tamar and Newton Ferrers on the Lynher (Notter). His attention, he tells us, was first called to the plant by Mr. Kempthorne, of Callington, who found it growing in a field near Newton Ferrers. It still grows in considerable quantity in certain parts of the tract named, and I have also met with it below Hingston Down on the south, and in a spot about a mile from Callington. In 1868 I discovered it in two spots near Maristow, some miles within the Devon border; but since that time cultivation of the surface has much reduced the quantity of the plant in the locality, though I noticed it existing there so recently as 1877. With the records before us, a glance at a map of Devon and Cornwall will show that its range, *as hitherto ascertained*, extends from the neighbourhood of Bodmin to Cardynham and Bradoc on the east; and again from the eastern part of Quethiock to the Devon side of the Tamar near Gunnislake, and to Calstock and Halton on the other side below; with, to use a geological phrase, two outlying patches near Maristow. Notwithstanding the great interest belonging to this species, its range in Cornwall is not as yet exactly ascertained, and a local botanist would do good work in fully tracing it out. The statements of its localities in our standard British Floras are mostly inexact and misleading. Those of Bentham's are the most correct: "In a few very limited localities in Cornwall and Devonshire." Hooker's, in *Student's Flora*, are far less so: "Thickets, Tavistock; Bodmin, on the Priory lands." Babington has under it, "Devon and Cornwall, rare." Boswell, in *English Botany*, "About Bodmin, in Cornwall, and near Tavistock, Devon," with the additional statements that he had had ripe seed of the plant of me from "near Calstock."

No facts within our knowledge suffice to explain the very limited and peculiar distribution of this species. It is now generally identified with a Continental plant, formerly thought by some to be distinct. These persons consequently had to face the conclusion of the *Physospermum* being limited in the whole world to Cornwall. This would be unlike any other phanerogamous species, of which there is no *undoubted one* peculiar even to the United Kingdom. The real facts concerning its distribution are sufficiently striking;

for in it we see a plant occurring over a small portion of Cornwall away from the coast, together with a little piece of Devon in proximity, not appearing again until we reach the Spanish peninsula and the south of France. Bentham speaks of it as "a mountain plant, occurring here and there along the great European chain from the Asturias to the Caucasus."

I have now glanced at what seem to me to be some of the most striking facts in distribution shown by the *Umbelliferae* species in Devon and Cornwall. I have brought them forward as being suggestive of queries for botanists and other scientists to ponder over and endeavour to answer. I have also tried to indicate subjects connected with local botany that seem suitable for the enquiry and research of members of a learned and scientific association, such as our Plymouth Institution and Devon and Cornwall Natural History Society.

OUR DANISH ANCESTORS.

SYLLABUS OF LECTURE BY MR. D. SLATER, M.A.

(Read February 22nd, 1883.)

ENGLAND and Scandinavia in the Pleistocene Age. The Pre-historic Period. The Bronze Age; the Iron Age; Historical Period. The Danes; the Northmen. The Danish account of their own origin. The Scandinavian Mythology; their Cosmogony. Of Ragnarök. Characteristic differences of Danes and Norsemen. The newly-found Viking ship (one thousand years old). Danish remains in the North of England and in Devonshire. Effects of the Danish immigrations on the English language and literature, commerce and character.

MORE RECENT PHASES OF THE GERM THEORY.

SYLLABUS OF LECTURE BY DR. W. CASH REED.

(Read March 1st, 1883.)

1. INTRODUCTION. Contagion ; Tyndall's "Germ Clouds." 2. The influences of acids in modifying fermentation (original investigations). 3. Do germs exist in the healthy animal body? 4. Putrescible substances have no inherent tendency to putrefy. 5. Argument of *probability* in support of germ theory. 6. Carbolic acid : its special sphere. 7. An objection to the germ theory considered. 8. Regarding germs themselves ; some of their negative and positive characteristics. 9. Conclusion.

FLAME.

SYLLABUS OF PAPER BY MR. A. RIDER, F.C.S.

(Read March 15th, 1883.)

CHEMICAL change. Combustion, slow and quick. Point of ignition. Flame : its nature. Temperature, different kinds. Flameless combustion. Illustrations.

THE PLACE OF THE LOWER ANIMALS IN OUR REGARD.

ON THE POINT OF COMPARATIVE MENTAL CAPACITY ONLY.

SYLLABUS OF PAPER BY MR. H. M. EVANS.

(Read March 22nd, 1883.)

SENSE and moving organs. Nervous system. Reflex action. Habitual action. Perception. Retentiveness. Experience. Feelings. Spontaneity and impulsive action. Emotional expression. Exalted senses. Vital force. Connection of mind and body. Instincts. Habits. Accountability. Language. Concentration. Summary of distinctions.

OPENING OF THE NEW MUSEUM.

MARCH 27TH, 1883.

THE arrangement of the collections in the New Museum, although far from complete, having early in the year advanced sufficiently to enable them to be put to some practical use, it was thought by the Council inadvisable to delay the formal opening, and it was therefore arranged to take place on Tuesday, March 27th, the Right Worshipful the Mayor of Plymouth (Mr. J. Shelly) kindly consenting to be present and take part in the proceedings.

There was a large attendance of Members, Associates, and general Subscribers, including the President (Mr. R. N. Worth, F.G.S.), the Right Worshipful the Mayor of Plymouth (Mr. J. Shelly), the Right Worshipful the Mayor of Devonport (Mr. G. T. Rolstone), the Chairman of the Stonehouse Local Board (Mr. T. S. Bayly), the Rev. Professor Chapman, M.A., the Rev. Professor Anthony, M.A., Rev. J. Erskine Risk, M.A., Rev. W. Sharman, F.G.S., Capt. Inskip, F.R.G.S., J.P., Dr. Prance, Dr. Jamieson, Messrs. F. Brent and J. C. Inglis, C.E., Honorary Secretaries, S. Cater and E. G. Bennett, Honorary Treasurers, J. Hine, F.R.I.B.A., T. R. A. Briggs, F.L.S., F. J. Webb, F.G.S., C. W. Dymond, F.S.A., P. J. Margary, C.E., J. Windeatt, A. Groser, H. P. Prance, W. H. Alger, R. R. Fox, J. Windeatt, G. C. Bignell, M.E.S., W. E. Odgers, F. Taylor, J. Taylor, A. J. Kerswill, F. J. Kerswill, C. Radford, A. S. Harris, J. A. Page, H. M. Evans, J. Penson, J. Windeatt, J. Hele, J. Goad, H. Keen, J. P. Chalker, J. Payne, &c., and a large number of ladies. Letters of apology for absence were received from the Earl of Mount Edgcumbe, the Earl of Morley, Lord Robartes, Mr. P. S. MacIver, M.P., Mr. E. Clarke, M.P., and other gentlemen. The party having assembled in the lecture-hall,

The PRESIDENT said: On the 26th November, 1817, the Building Committee of the Plymouth Institution closed their report, recommending the erection of the Athenæum, with these words: "Your Committee cannot omit again calling your attention to the peculiar nature of this Society, and to the fair hopes which may reasonably be

indulged of its future progress. It is because we think it a durable possession to ourselves and our descendants, an attempt which will do some honour to our memories, and confer the best of benefits on our posterity,—it is on this ground we, as individuals, would ask for every exertion of zeal that might raise the character and extend the usefulness of our Society, and we humbly conceive that such an effort as that which we have now the honour to recommend would be, as it were, placing the key-stone upon our arch, and giving a public proof that knowledge is here rightly esteemed and cultivated." Such were the words, sixty-five years since, of Robert Lampen, Joseph Collier Cookworthy, Henry Welsford, Robert Wills, and Henry Gandy. It is in their spirit, and for their further realisation, we are met here to-day.

With the single exception of the Philosophical Society of Manchester, the Plymouth Institution, now in its seventy-first year, is the oldest literary and scientific association in the provinces. Without exception our Museum is the oldest in the West of England. Founded in 1812, seven years had barely elapsed ere this Society reared and took possession of the building in which we are now met (and it is curious to note that one of the reasons for the selection of this site was its comparative remoteness from the bustle of the town, and another its comparative readiness of access for the members who lived at Dock). The original structure consisted simply of this hall and the rooms in front, but before many years (1828–29) the building was extended in the rear, and the room erected which for more than half a century was used as our Museum, and for the greater part of that period was the only Museum of which Plymouth could boast. It has served its purpose well in forming the foundation of our work to-day.

The need of wider Museum accommodation, felt for many years, has pressed with ever-increasing force since, in 1851, the Devon and Cornwall Natural History Society became amalgamated with the Plymouth Institution, and the large and valuable collections of both associations were united. Again and again the effort has been made to meet the want, sometimes in connection with this Institution, sometimes with the purpose of establishing a Town Museum on a wider basis. It is not pleasant to recall a list of failures, and I pass them by. The impulse from which the present successful movement has sprung was given when, in 1877, the British Association visited this town, and some of our members did their best to place a por-

tion of our collections in order. From that time forward the subject has never been allowed to drop, and my respected predecessor in this chair, in his presidential address in 1879, struck a key-note to which there was a hearty response within these walls. Failing the adoption of the scheme by the town at large, the initiative was taken by this Society. We could not do all we wished, but we resolved to do what we could. We determined that, so far as the efforts of the Plymouth Institution went, Plymouth should no longer rest under the reproach of being Museumless. We saw that the possession of a valuable site, of large and important collections, of a working staff, would enable a comparatively moderate expenditure in our hands to produce results that twice the money applied independently would fail to secure; and we resolved, not indeed without some questionings, to proceed. Under Mr. Brooking Rowe's presidency plans for a Museum and Art Gallery were prepared. They have been carried out and completed in my own. In response to our earnest appeal friends rallied round us, and not without difficulty, not without debt, our work is so far done that we have the pleasure of inviting you here to-day to celebrate the opening of the New Museum. I trust and believe the results will be found an ample return for the money and the pains expended.

Thanks to the untiring labours of our predecessors our Museum is already fairly furnished (I wish we could say as much of our Art Gallery, but that will come). We cannot praise too highly the zeal and scientific assiduity of such men as Hamilton Smith, Richard Hennah, John Prideaux, W. E. Leach, Edward Moore, W. S. Hore, J. S. Bellamy, P. F. Bellamy, and their associates, the traces of whose influence and handiwork are seen on every hand. They brought together collections which in some respects are unrivalled, and which, though thinned by inevitable decay, and deteriorated by neglect compelled by want of arrangement space, are yet of the highest scientific and even historic value.

You will find in our Museum cases the original specimens by which Richard Hennah established the fossiliferous character of the lime rocks of Plymouth, and some at least of those which illustrated John Prideaux's first paper on our local geology, and of those which are figured in Bellamy's *Natural History of South Devon*. We have relics of Whidbey's discoveries of the extinct mammalia at Oreston, and the famous Kent's Cavern is represented by choice collections from its original explorers—Northmore and McEnery.

Among our birds is the Julian collection, well known to ornithologists; and our antiquities illustrate almost every phase of the prehistoric life of the West, and its elder civilisation.

Many a notable name is inscribed on our donors' roll. Northcote, the Academician, is among them, and the unfortunate Benjamin Robert Haydon, and Kitto the deaf student, and Roscoe the historian, and James Montgomery, the poet, and Maximilian of Wied, the German prince scientist, and Haiiy, the mineralogist. Bowerbank, the geologist, too, is of the number, and General Nelson, who first taught the world the true system of growth of coral rocks, and Montagu and Rodd, the ornithologists, with Franklin and Parry, the Arctic explorers. These, and many others who once dwelt among us, but have passed away—Woolcombe, Loudon, Treby, Yonge, Coryndon, Soltau, Dunsterville, Budd, Creyke, Pincombe, Snow Harris, Wyatt, Johns, Calmady, Spence, Pode, Magrath, Tripe, Harvey, Mudge, Hawker, Lampen, Lockyer—have enabled our Curators in the past, themselves most liberal of their gifts as well as of their time and pains, to form the collections which now for the first time in the history of the Society we can adequately classify and display. The labours of these other men into which we have thus entered carry with them a great and serious responsibility.

But a few words must be said about the Museum in its scientific aspects. The olden idea of a Museum has died out for ever—the idea that gave our Museums no higher character than that of mere heterogeneous collections of curiosities. Every article placed in a Museum should have its purpose. I assent fully to the opinion expressed by my predecessor in 1879, when he said, "The basis should be, of course, local, but there should be a thoroughly good typical Museum. This would not be necessarily extensive, but it should be made as complete as possible, so as to illustrate the more restricted fauna and flora, fossil and recent, which would constitute the chief part of the Museum, to the perfecting of which the energies of those having charge of it would necessarily be directed." This, as opposed on the one hand to the mixed medley which so often disgraces the Museum name, and on the other to the rigid exclusion of everything that is not strictly of a local character, seems to me the true theory of a provincial Museum—one which should, as far as possible, bring the skilled scientist into direct relation with all the native productions of the district, but which

should also supply the humble student with the means of obtaining that general outline of the natural sciences, without which progress in detail is impossible. Confine yourself to the map of Devon, and you will fail to grasp the geography of even one county. The formation of a typical Museum, desirable always, has indeed become imperative since the general acceptance of the theory of evolution has linked in unbroken unity the most distant and diverse organic forms.

To illustrate precisely what I mean from the science in which I feel most interest, I would point out that the much-vexed "Devonian Question" of the geologist cannot be adequately apprehended without a certain knowledge of the palæontology of the Silurian system on the one hand, and of the Carboniferous on the other. Nor can the corals of which our lime rocks are in great part composed be fully understood, without some such acquaintance with their recent representatives as our Museum is fortunately in a position to supply. And so with our very varied igneous and metamorphic rocks. They need the amplest illustration from without.

Or take Anthropology. The vestiges of ancient man in this county, though reaching back almost to the remotest antiquity yet suggested for the human race, are very fragmentary, very obscure. If you want to complete the links of the chain which connects the palæolithic man of Devon with the modern speculator upon his status, you will find the material in the instruments and weapons of modern savages, or in the caves, the gravels, the kitchen middens, the lake dwellings, the peat mosses, the barrows, which underlie or accompany modern civilisation. You cannot spell out Anthropology if you drop any of its letters; but with the aid of our own extensive display of the manufactures of savage man, and of the rich loan from his own almost unrivalled private collection of flint implements, for which we are indebted to our valued secretary, Mr. Brent, all is clear, and you can trace the palæolithic dweller in the Axe valley, or the hunter of the Torbay caves, stage after stage, through the stone and bronze and iron ages, until his representatives stand here to-day, and wonder at the distance they have travelled.

But I may not detain you further. On behalf of the Institution over which I have the honour to preside, I have to thank most heartily the kind friends by whose aid this work has been accomplished. May I venture to express the hope that the interest shown

in the erection of the Museum will be continued in supplying it with material. Already Mr. Norrington has added most valuably to our conchology; our good friend, Mr. Bignell, has enriched our entomological cases by over 1,100 specimens; Mr. J. Windeatt has given us a fine specimen of that curious "link" mammal, the ornithorhyncus, and we have had many gifts from other sources. Growth is the law of utility, the condition of useful existence, in Museums as in all other institutions; and if at any time by the provision of worthy material we outgrow our accommodation, I hope we shall not stand still, but have sufficient energy left to attempt to provide more room.

We gladly welcome here to-day the chief magistrates and representatives of this great triple community, and I have to tender to these gentlemen our cordial thanks for their presence and assistance. We feel that we have not been doing a private but a public work, and that not for Plymouth only but for the whole district. It is the intention of the members of this Institution, as soon as the necessary arrangements can be made, to admit the public at stated times free, and at other times on payment of a small charge to defray the extra expense involved. We open our Museum therefore in the hope that it will supply a long-felt public want, and that the progress of science and art in Plymouth and its neighbourhood may date from this day a new and abiding impulse. I have now the pleasure of calling upon the Mayor of Plymouth.

THE MAYOR OF PLYMOUTH: As a member of this Institution now for more than twenty years, I may naturally claim to be very deeply interested in these proceedings; but I accept this invitation to address you as an indication that your Institution desires still in the future to connect itself with the life of the town at large as it has done in the past. Looking back to the volume of *Transactions* published by this Society in 1830, I find that the editor, who I think must have been the Rev. Robert Lampen, states that it was the object of the contributors to that volume to address themselves chiefly to those subjects for the discussion of which local facilities, or other circumstances, gave the members advantages not within the reach of their fellow-labourers within the same field of knowledge. And looking over the valuable and interesting series of papers published by this Society since, I think we may say that purpose has been fully and nobly fulfilled. The members of this Institution have from time to time rendered most valuable help by

their ability, and by their learning and their industry, to the discussion of most interesting and useful questions touching, as you have observed, the Natural History, and not the Natural History only, but the Social and Political History of these towns, and also such questions of Art and Science as have special interest to us in their connection with these towns and the neighbourhood. In this way the volumes of the *Transactions* of this Society have become a store of almost unrivalled value for the illustration of the Physical, the Political, the Social, the Ecclesiastical, and the Artistic History of these Three Towns; and in contributing to this result, the members have associated themselves most intimately with the welfare of the town at large. But it is not only by labours such as these—by these learned efforts, and by these interesting and valuable papers which have been published from time to time—but it is still more by the very existence and cordial work of such a Society as this, that the whole tone of social life in the town is raised and elevated, and that we are saved from degenerating, as we are apt to do, into some monotonous level of life, without high objects, high aims, and high endeavours—a life from which we may be lifted, and from which we are most surely lifted, by the most purifying and elevating influences of Art and Science. It is this influence which this Society has so continuously and successfully diffused throughout this locality; and while we find among the members whom the President has mentioned men who have achieved a national, and some even a European reputation, there are also men who are not so widely known, but who have done most valuable work in the education of this neighbourhood; in educating themselves, and in educating their fellow-members and associates in this Institution; and in rendering most valuable help to our enjoyment of high social and intellectual life so cultivated here. In this respect this Institution has from the beginning done a most valuable service to the town and neighbourhood. In this respect I believe with you, Mr. President, and venture earnestly to hope, that the Museum which is to be opened this day will lend still more valuable service to present and future students of Science and Art; for I cherish the hope that the Art Gallery also may be speedily and greatly increased. And while doing that, I trust this Institution will continue to afford to those who belong to it a means of pleasant, elevating, and refined enjoyment.

The PRESIDENT: We hope to be favoured with the company of

the Mayor of Devonport, but he is at present unavoidably detained, and I have the pleasure now of calling upon the Chairman of the Stonehouse Local Board.

Mr. J. S. BAYLY : As representing the township of East Stonehouse, I have very much pleasure in being here to-day and taking part in these interesting proceedings, and in congratulating the members of this Institution on the successful accomplishment of this important work. Though the Museum belongs to Plymouth, I take it that we in Stonehouse will be able to participate in its advantages, and that it will be an important scientific centre for the whole district.

Mr. CATER, who was next called on by the President as Treasurer, said he was unable to place a complete balance-sheet before the Members and Subscribers, because the whole of the work was not completed. The total cost of the new works, including the erection of the caretaker's house, was, however, about £1750, towards which £1203 16s. had been subscribed. £546 was therefore yet needed.

The ladies and gentlemen present then, at the invitation of the President, accompanied him to the Museum, which was opened by the Secretary, Mr. BRENT. All having assembled, at the request of the President,

The MAYOR of PLYMOUTH said : I have now the very great pleasure of declaring the New Museum and Art Gallery of the Plymouth Institution opened, and I hope that they will prove a useful help and incentive to study for many generations to come.

After a brief explanation of the general arrangements of the Museum,

The MAYOR of DEVONPORT, who had been detained by professional engagements, arrived, and added his congratulations to those already expressed, remarking : As the Chief Magistrate of the sister borough of Devonport, it gives me very great pleasure to be here to-day and take part in these interesting proceedings. You have been engaged in carrying out a very important work—one for which I think a locality like this should afford many facilities. I am delighted to find that the principal difficulties have been overcome, and I trust that the highest anticipations of the usefulness of this great scientific and educational movement may be realised.

The company then proceeded to inspect the various departments.

SIR JOHN HAWKINS, SAILOR AND STATESMAN.

SYLLABUS OF LECTURE BY MR. R. N. WORTH, F.G.S.

(Read March 29th, 1883.)

IN this paper the ancestry of the Hawkins family was traced, and in addition to Sir John Hawkins, sketches given of the lives of his father, "old William Hawkins," the first English trader to Brazil, and pioneer of our South Sea enterprise ; William Hawkins, his brother ; Sir Richard Hawkins, his son, the "complete seaman ;" and William Hawkins, his nephew, founder of the first trading house of the East India Company at Surat. The materials were largely drawn from the local municipal records, and it embodied many hitherto unpublished details in the history of this greatest of English sailor and merchant families.

CONTRIBUTION TOWARDS THE FAUNA OF THE NEIGHBOURHOOD OF PLYMOUTH.

BY MR. G. C. BIGNELL, M.E.S.

HYMENOPTERA ; ICHNEUMONIDÆ.

Arranged according to the Rev. T. A. Marshall's Catalogue, published by the Entomological Society of London, 1872.

PART III.

CHASMODES motatorius. Captured at Bickleigh, 8th September.

ICHNEUMON pistorius. Bickleigh, 20th August.

melanotis. Bickleigh, 14th September.

luctatorius. Egloskerry, 23rd July.

caloscelus. Bickleigh, 30th August.

submarginatus. Bickleigh, 28th June.

fabricator. Bickleigh, 18th May.

lanius. Plymbridge, 20th May.

chionomus. Bickleigh, 14th September.

derogator. Bickleigh, 8th September.

EXOPHANES exulans. Whitsand Bay, 6th May ; Egloskerry, 23rd July.

PLATYLABUS nigrocyanus. Bred 14th June.

dimidiatus. Bred 11th May from *Melanippe montanata*.

HERPESTOMUS intermedius. A new British species. Captured at Bickleigh, 1st August ; and another specimen taken at Exeter, 2nd September, 1882.

COLPOGNATHUS celerator. Bolt Head, 17th June ; Horrabridge, 10th September.

DICÆLOTUS ruficoxatus. Bickleigh, 24th June.

PHÆOGENES semivulpinus. Egloskerry, 23rd July.

scutellaris. Horrabridge, 3rd June.

suspica (Wesm.). Bickleigh, 11th August. A new British species.

PHÆOGENES cephalotes. Horrabridge, 10th September.

troglogytes. Plymbridge, 24th September.

jucundus. Bickleigh, 30th August.

OIORHINUS pallipalpus (Wesm.). Egloskerry, 23rd July. A new British species, and first of the genus taken in England.

ÆTHECERUS nitidus. Plymbridge, 5th May. This and the next are new British species.

dispar. Egloskerry, 23rd July.

STILPNUS gagates. Bickleigh, 4th August.

PHYGADEUON variabilis. Exminster, 28th July.

nitidus. Bickleigh, 19th September.

larvatus. Egloskerry, 23rd July.

jucundus. Bickleigh, 30th August.

probus (Tasch.). Bickleigh, 2nd September. A new British species.

CRYPTUS albatorius. Bickleigh, 8th June.

porrectorius. Bred 25th July from a pupa found on a currant-leaf; another captured at Bickleigh, 8th September.

peregrinator. Exminster, 28th July.

cimbices.

HEMITELES furcatus. Bred 27th May from *Dianthæcia cucubali*. Larva taken in September.

necator. Bickleigh, 8th September.

oxyphimus. Bickleigh, 8th September.

similis. Bred 15th August. The larva found feeding on a batch of Spider's eggs that had been deposited in a compact mass in the corner of a window.

vicinus. Bred 8th July—two males and sixteen females—from a pupa of *Argynius paphia*, found at Shaugh Bridge.

tristator. Bickleigh, 6th September.

conformis. Bickleigh, 24th June.

bicolorinus. Stonehouse, 22nd June.

distinctus (Bridgman). This and the next are new species, which I captured at Exeter, 23rd September, 1882.

politus (Bridgman).

meridionalis. A new British species. Taken at Bickleigh, 6th September.

castaneus. Bred 13th April from Sawfly cocoon (*Trichiosoma betuleti*).

HEMITELES *fragilis*. Exeter, 23rd September.

dissimilis. Plymbridge, 7th August.

ORTHOPELMA *luteolator*. Bred 14th June. A parasite on *Rhodites eglanteriae*. (The maker of the pea-sized galls found on the Wild Rose, chiefly on the under side of the leaf.)

APTESIS *brachyptera*. Exeter, 2nd September.

THEROSCOPIUS *Esenbeckii*. Whitsand Bay, 6th May.

HEMIMACHUS *instabilis* (Foerst.). Bred 10th July from *Zygæna filipendulæ* cocoons.

PEZOMACHUS *agilis*. Exeter, 2nd September.

dysalotus. Exeter, 2nd September.

distinctus (Foerst.) Exeter, 2nd September. A new British species.

OPHION *luteum*. Bred from *Miselia oxyacanthæ*; 25th May, from *Agrotis præcox*; 18th July, from *Acronycta leporina*.

PANISCUS *testaceus*. Bred 14th May from *Eupithecia castigata*; 22nd May, from *Xylina rhizolitha*.

tarsatus. Bred 23rd May from *Eupithecia castigata*; also from *Eupithecia absynthiata* and *virgaureata*.

CAMPOPLEX *mixtus*. Bred 4th August from *Pygæra bucephala*.

pugillator. Bred 11th August from *Cymatophora ridens*; 6th April, *Tæniocampa populete*; 4th May, *Eupithecia abbreviata*; 11th July, *Eupithecia absynthiata*.

carinifrons. Bred 6th June from — (?).

oxyacanthæ. A new British species. Bred 10th May from *Himera pennaria*.

falcator. A new British species. Bred 24th April from *Notodonta ziczac*.

CYMODUSA *cruentata*. Whitsand Bay, 6th May.

SAGARITIS *declinator*. Bred 25th March from — (?).

LIMNERIA *crassiuscula*. Bred 10th August from *Dicranura vinula* larva, when between the third and fourth moult.

vulgaris. Bred 4th July from *Gonepteryx rhamni*. In my first paper this insect was named *Albida*, in error.

combinata. Bickleigh, 3rd May. A new British species.

ATRACTODES *vestalis*. Hooe, 13th August; Bickleigh, 14th Sept.

MESOCHORUS *thoracicus*. Weston Mills, 18th May.

anomalus. Bred 20th July from *Euchelia jacobææ*.

THERSILOCHUS *truncorum*. Exeter, 2nd September.

EXETASTES *nigripes*. Pennycomequick, 1st August.

MESOLEPTUS *similis*. Bickleigh, 28th June. A new British species.

EURYPROCTUS *nigriceps*. Bred 11th June from Sawfly cocoon (*Trichiosoma betuleti*).

PERILISSUS *prærogator*. Bickleigh, 30th August.

MEGASTYLUS *cruentator*. Hartley, 28th September.

MESOLEIUS *ruficornis*. Bickleigh, 8th September. A new British species.

CTENISCUS *bimaculatus* (Holmgr.). Bickleigh, 30th August. A new British species.

EXOCHUS *pictus*. Bickleigh, 30th August. A new British species.

CHORINAEUS *funebis*. Bickleigh, 24th June; 4th August.

BASSUS *scabriculus* (Holmgr.). Whitsand Bay, 6th May; Laira, 8th May. A new British species.

flavolineatus. Whitsand Bay, 6th May.

Holmgreni. Bickleigh, 20th August. A new British species.

pallidipes. Bickleigh, 14th September.

PIMPLA *graminellæ*. Bolt Head, 17th June; Bickleigh, 24th June.

stercorator. Bred 14th March from *Eupithecia linariata*.

brevicornis. Bred 5th August from *Dianthæcia cucubali*.

nucum. Egloskerry, 23rd July.

POLYSPHINCTA *varipes*. Exeter, 23rd September.

LISSONOTA *commixta*. Bickleigh, 8th September.

BRACON *fulvipes*. Egloskerry, 23rd July.

longicollis. Bickleigh, 13th July.

coraticus (Wesm.). A new British species. Plym Bridge, 11th August.

RHOGAS *periscelis*. Exeter, 23rd September.

COLASTES *braconius*. Bickleigh, 19th September.

decorator. Bickleigh, 28th May.

SIGALPHUS *obs curellus*. Bred 19th September from *Gymnetron noctis*, a small beetle, the larva of which feed on the unripe seeds of the Toad-flax (*Linaria vulgaris*).

ASCOGASTER *rufidens* (Wesm.). A new British species. Egloskerry, 23rd July.

APANTELES *glomeratus*. This is the common parasite that infests *Pieris brassicæ*. This year (1882) I have bred it (6th June) from *Pieris rapæ*. The cocoons were obtained the previous autumn at Stoke; but a greater surprise was breeding it on the 4th July from *Phigalia pilosaria*.

APANTELES vitripennis. Bred 24th June from *Amphipyra pyramidea* larva, which produced eight specimens.

perspicuus (Nees). A new British species. Bred 27th May from *Leucania littoralis*.

brevicornis (Wesm.). Bred 4th July from *Tæniocampa miniosa*.

tetricus (Rhd.). A new British species. Bred 24th August from *Satyrus janira*. Fifty larvæ of *tetricus* found food within the larva of *janira*.

fraternus (Rhd.). A new British species. Bred 20th September from *Aspilates citraria*.

As *fraternus* is new to this country, it may be interesting to know something of its economy. In this instance twenty-seven were bred. The larvæ emerge, almost spontaneously, from each side of their victim, and they at once commence making their cocoons, which are formed on the under side of whatever the larva of *Citraria* may be then resting upon. They are formed in a very orderly manner, taking into consideration that the whole twenty-seven work at the same time, and form a semi-pyramid of cocoons, and when finished the unfortunate larva seems to have a very great affection for them by covering them with its body, apparently to protect them. After the flies had escaped, I removed a thin slice, with a sharp knife, off one side of the cocoons, which enabled me to see how the fabric was constructed. The foundation cocoons consisted of eight; the next tier also contained eight; the others were above, but not in such regular order. Those in the centre were more or less five-sided, and in general appearance looked like a miniature piece of honeycomb. In length the group was 7 millimetres, and $2\frac{1}{2}$ in height.

MICROPLITIS fumipennis (Rtzb.). A new British species. Bred 19th June from *Tæniocampa miniosa*. One only in a less than half-grown larva.

medianus (Ruthe). A new British species. Bred 30th June from *Cerastis spadicea*.

mediator (Hal.) = *dorsalis* (Nees). Bred 30th June from *Cerastis spadicea* and *Tæniocampa stabilis*.

EARINUS affinis. Plym Bridge, 5th May.

ZEMIOTES albiditarsus. Plym Bridge, 20th May.

caligatus. Bred 23rd June from *Eupithecia expallidata*.

PROTELUS *chrysophthalmus*. Bred 12th July from *Himera pennaria*.

PERILITUS *laticeps*. Hooe, 13th August.

medianus. Thirteen bred 31st May from a larva of *Agrotis tritici*.

albicornis. Bickleigh, 16th September.

GANYCHORUS *ruficornis*. Plym Bridge, 7th August.

CENTISTES *lucidator*. Bickleigh, 14th September.

MACROCENTRUS *thoracicus*. Bickleigh, 19th September.

collaris. Bred 19th July from *Noctua triangulum*.

OPIUS *reconditor*. Bickleigh, 28th May.

PHÆNOCARPA *ruficeps*. Hooe, 13th August; Exeter, 23rd Sept.

conspureator. Shaugh Bridge, 9th August.

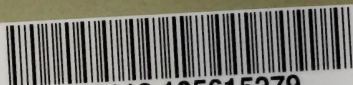
DACNUSA *senilis*. Plym Bridge, 7th August.

7, CLARENCE PLACE, STONEHOUSE,

30th March, 1883.

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